Operators Manual

Firmware Version 5.2

Ag Leader PN 4003964-ENG Rev. B

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ABOUT THIS MANUAL

INTRODUCTION AND COMPANY PROFILE

ABOUT US

Welcome to the Ag Leader Technology family. Ag Leader Technology, Inc. is the global leader in yield monitor and precision farming systems and is committed to meeting the present and future needs of the agriculture industry by providing high quality products and first class customer support.

INNOVATION

Ag Leader Technology manufactures and sells products which support a wide array of precision farming practices. These include grain yield monitoring, application rate control and monitoring, variable rate fertilizer application, site-verification, GPS guidance and interface to Autosteer technologies.

COMPATIBILITY

Ag Leader Technology offers compatibility and supports integration of many different types and brands of equipment used for precision farming. The latest equipment available is supported as well as older series of combines, planters, sprayers, tillage equipment, etc.

QUALITY AND SUPPORT

Ag Leader Technology continues to provide the best customer support in the industry. Precision farming doesn't come without questions. Ag Leader is committed to providing the most responsive, knowledgeable and friendly technical support available. Our technical support team is available seven-days-a-week during peak seasons to answer your questions on the operation of Ag Leader products.

WE WANT TO HEAR FROM YOU!

Feel free to call and discuss:

- Operational questions about the display
- Features you would like to see implemented to improve the system or features you would like to see added to the system to increase functionality

DISPLAY

The display is a full-featured, year-round hub of any precision farming operation. A full-color, high-brightness, high-resolution touchscreen display is easy to read and offers powerful, year-round precision farming tools. Built-in manual guidance, full-screen mapping, and automated steering make up the core functionality of the display.

WARNING: Read manual completely before operating display. Understand and follow all operating and safety instructions for proper use of this display. Failure to use display properly could result in an impairment of the safety features of this product.

SERVICE

There are no user-serviceable parts inside the display. Contact the manufacturer for a Return Material Authorization (RMA).

ph: (515) 232-5363

fax: (515) 232-3595

e-mail: support@agleader.com

CAUTION: *This display has an internal lithium coin cell battery that is good for the life of the product and does not need to be replaced. There is a risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the battery manufacturer's instructions.*

System Uses

- Manual Guidance
- ParaDyme™ and GeoSteer™ automated steering
- OnTrac2+™ Assisted Steering

System Features

- Rugged sealed enclosure
- Compatible with most NMEA GPS receivers
- Adjustable volume control
- Perspective 3D View Map
- Advanced GPS Diagnostics
- USB media slot
- 28-pin plug compatible with other Ag Leader displays.
- RAM mount

USB Flash Drive

A USB Flash Drive can be used to save and transfer your data in and out of the display.

Color Touch Screen

The display features a color touch screen display. The touch screen allows easy and intuitive navigation through the screens on the display without the need for any external keypad or mouse devices. Here are a few key things to remember if you are new to using a touch screen device:

- Do not use any sharp objects for running the touch screen device, this could result in damage to the display. Using the tip of a finger is the recommended method of operating the display touch screen.
- Do not use any harsh chemicals to clean the touch screen. Using a damp soft cloth or an anti-static wipe made specifically for cleaning computer displays is the correct way to clean the screen and the enclosure.
- The touch screen requires only a gentle touch of about half-second in duration to operate correctly. A common mistake is to try to navigate too quickly through the system using firm taps instead of gentle presses.

CAN BUS TECHNOLOGY

This system uses Controller Area Network (CAN) technology. CAN systems are comprised of individual modules, each with their own high speed processor, connected through a high-speed communications cable. CAN has many benefits, including greater ability to configure and expand the system, compatibility, simpler installations with less wiring, and increased system dependability.

TECHNICAL SPECIFICATIONS

Do not exceed the specifications below:

- Storage Temperature: -22 to +176 °F (-30 to +80 °C)
- Operating Temperature: -4 to +158 °F (-20 to +70 °C)
- Operating Input Voltage: 9 –16 V DC
- Max Current Rating: 4.0 amp
- Environmental Protection Rating: IP64
- No Protective Grounding required
- Use 150V minimum insulation rating for external circuits

CAUTION: *Exceeding these specifications may result in degraded operation and/or damage to the display.*

SYSTEM AND UPGRADES

Ag Leader Technology will periodically provide operating program updates that will improve the performance of your display. Required software updates will be available free of charge for download from www.agleader.com. On occasion, major releases will be made available that have significant product feature additions or enhancements. These optional software updates may have an additional fee associated with them.

PRODUCT REGISTRATION

When registering your Ag Leader Technology products by one of the following methods, you can elect to receive notice of any new product updates or features.

Register by mail: Ag Leader Technology

2202 South Riverside Dr.

Ames, IA 50010

Register by Fax: 515-232-3595

Register at the Ag Leader Web site at http://www.agleader.com

Conventions Used In This Manual

Cautions and Warnings

The operators manual uses the following text formatting schemes to call attention to information related to simplifying system operation and proper operating practices to prevent accidental data loss. If in doubt about the results of performing an action or deleting an item from the system, back up all system files to the USB external drive prior to proceeding with the action.

Note: *Provides informative tips to assist with system setup, calibration, and operation.*

CAUTION: *Indicates specific settings, calibrations, and procedures that must be followed for proper system performance and operation.*

WARNING: Indicates specific instructions to avoid accidental loss of data and system configurations settings.

Cross-References and Web Links

Throughout this manual, numerous cross-references are provided to other pages or sections. These cross-references are always shown in blue, italic text; and list the title and page number as in the following example: To find the information you're looking for, see *"How to Find Information You're Looking For" on page 4*. If you are viewing this manual in PDF format, you can click on this blue text and go directly to the link.

Links to web sites are shown in blue, italicized, and underlined text, as in the following example: To view the web site, go to: www.agleader.com.

Viewing this Manual Online

This operators manual can be viewed online at Ag Leader's Web site. To view an online version, go to the Ag Leader Web site and click the Customer Support link. You will see a page titled "Product Manuals."

To view and/or print the Operators Manual online, you will need the Adobe Acrobat or Adobe Reader .pdf file format. The Adobe Reader software comes pre-installed on most personal computers. If Adobe Reader is not installed on your computer the program is available for download at no charge. A link to the Adobe download site is located at the Ag Leader Web site.

How to Find Information You're Looking For

What do you do if you cannot find the information that you're looking for There are three different ways at your disposal to find specific information quickly. These steps can include:

1. Look up the information in the Table of Contents.

2. Look up the information in the section indexes that are located at the end of each manual section (Planting, Tillage, Application, and Harvest).

3. Use the Adobe Reader's search function. While viewing this manual online in PDF format, press the **CTRL**+**F** buttons on your keyboard. A search menu should appear, and from here, you may enter in a search term.

INSTALLATION

INSTALLATION INSTRUCTIONS

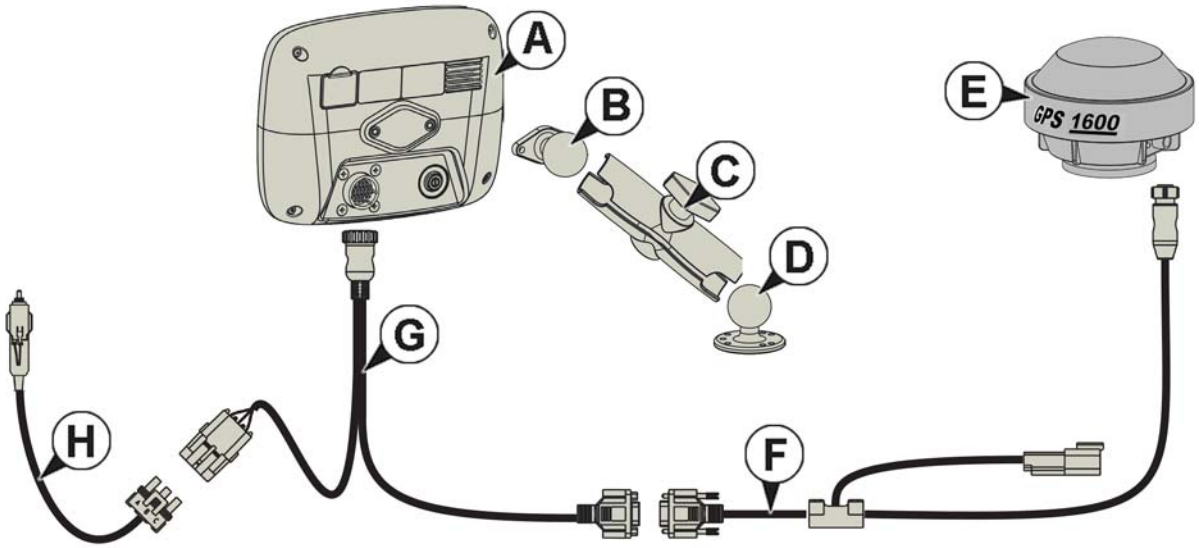
All machine installation and mounting kits are shipped with instructions specific to that kit. Instructions include special details relating to mounting, wiring and display configuration.

Mount the display to a secure support inside the vehicle cab. The following must be considered when choosing a mounting location:

- The display must be readily accessible to the machine operator.
- The display must not obstruct the machine operator's normal driving view.
- The display must not interfere with or limit access to any of the existing machine controls.
- The CAN system cabling be routed and secured without interfering with existing machine controls.

WARNING: If drilling holes is required during the mounting process, care must be taken to insure that damage is not done to existing vehicle wiring, mechanical, or cab structure. Refer to vehicle manufacturer documentation for specific details on your equipment. Follow all OEM instructions, cautions, and warnings when working around equipment.

Connecting the System

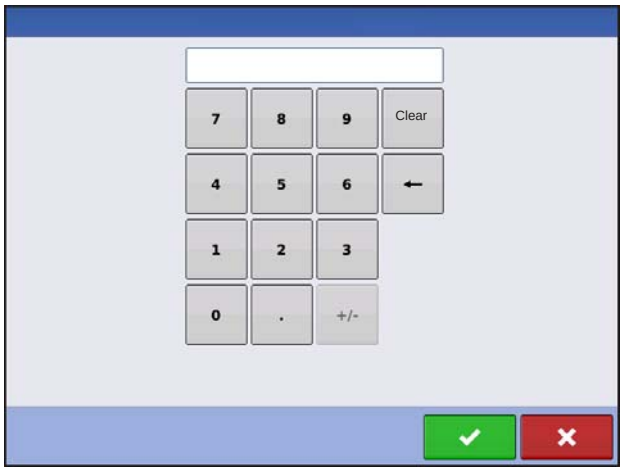


- **(A) Display**
- **(B) RAM Base**
- **(C) RAM Arm**
- **(D) *Ba*se**
- **(E) Receiver**
- **(F) Receiver Cable**
- **(G) Display Cable**
- **(H) Power Cable**

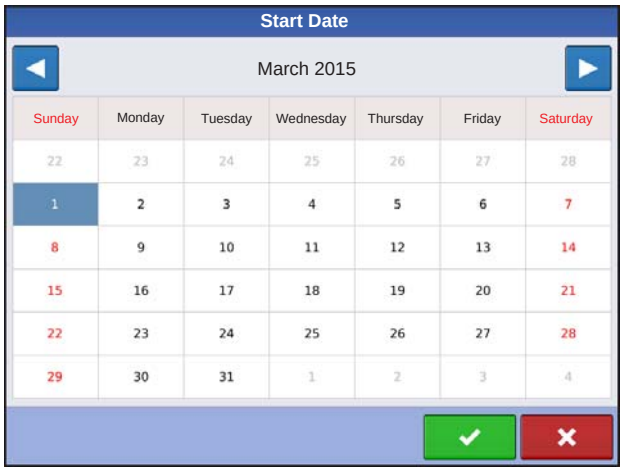
Screen Icon Conventions

The following control buttons are made available for entering names and calibration values into the system.

An on-screen Keyboard is made available when appropriate for use during all setup processes. Press the keyboard button to access the on-screen text entry screen.



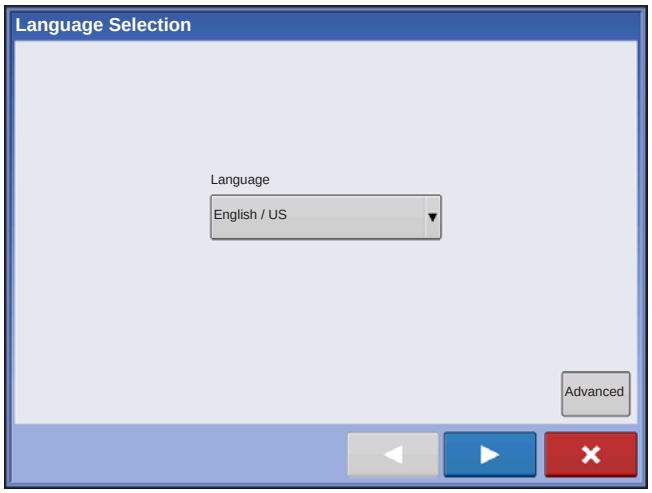
An on-screen Numeric Keypad is made available for changing configuration settings and calibration numbers. Press the keypad button to access the on-screen numeric entry screen.



An on-screen calendar is made available for changing dates. Press the calendar button to access the calendar screen.

CONFIGURATION

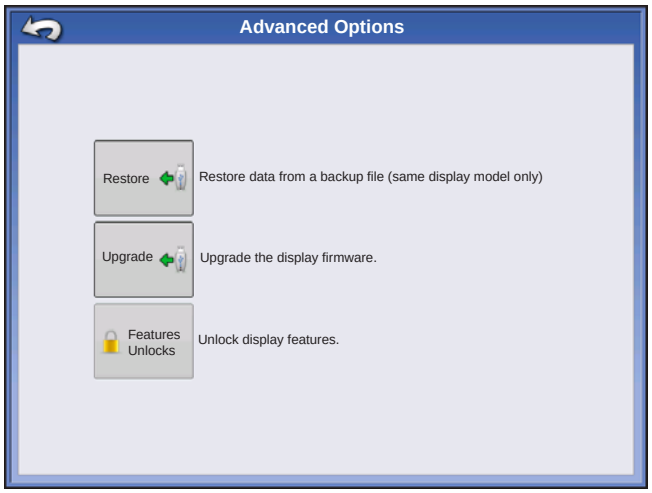
INITIAL STARTUP



An Initial Setup wizard is presented on startup.

Once the wizard is completed, it is not shown again unless the display memory is cleared.

ADVANCED OPTIONS



Press “Advanced” button on Language Selection screen (first screen to appear on initial startup).

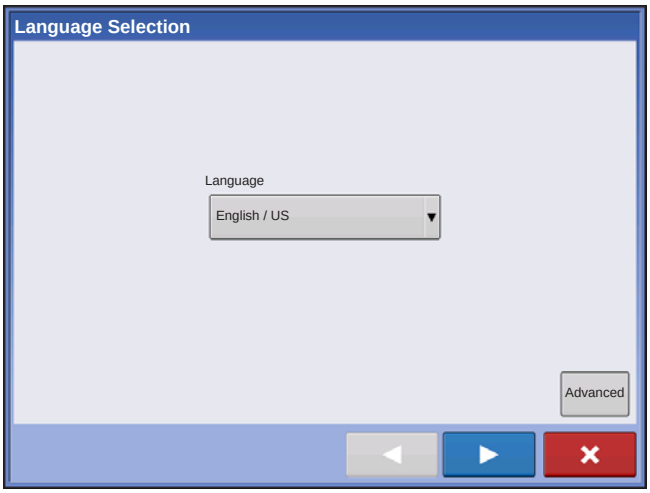
- Restore Backup
- Upgrade Firmware
- Unlock Display Features

Note: Using the Restore backup option is not the proper method to get multiple displays set up to be the same. Use the AGSETUP file.

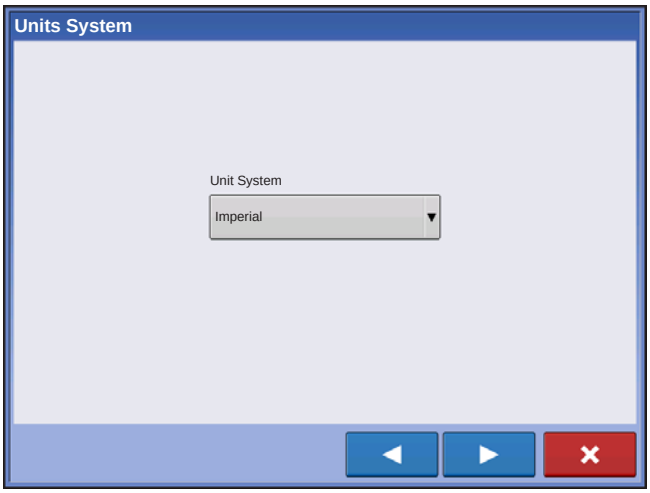
It is acceptable to complete the initial setup wizard and then upgrade. Setup information will not change.

On a “clean” display going out for service, to stand in for a failed display, the customer should use the Restore backup option in the initial setup wizard.

LOCATION SPECIFIC SETUP

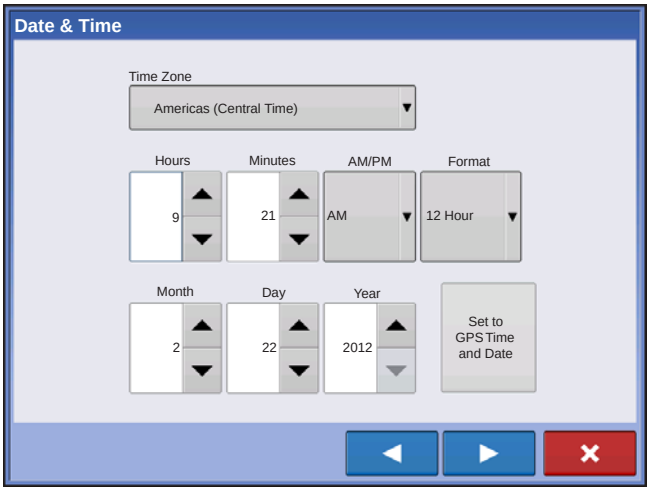


1. Language



2. Unit System

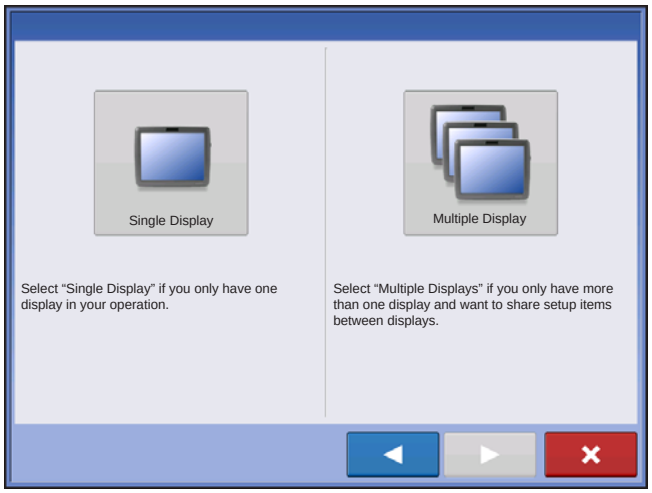
Imperial or Metric



3. Date and Time

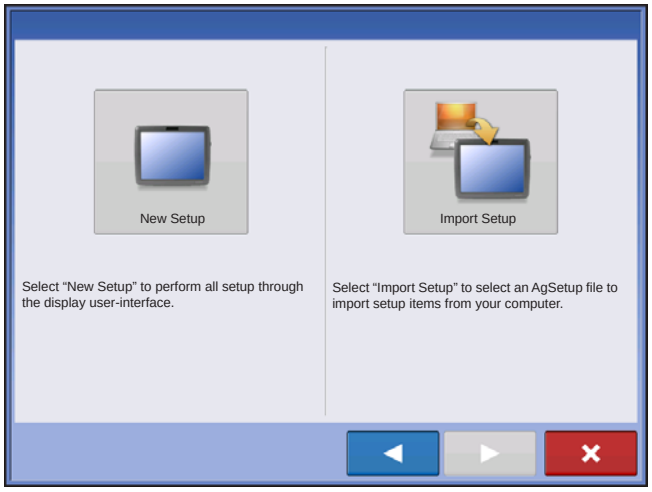
Set to GPS Time and Date requires ZDA NMEA message to be turned on from the GPS receiver.

SINGLE DISPLAY

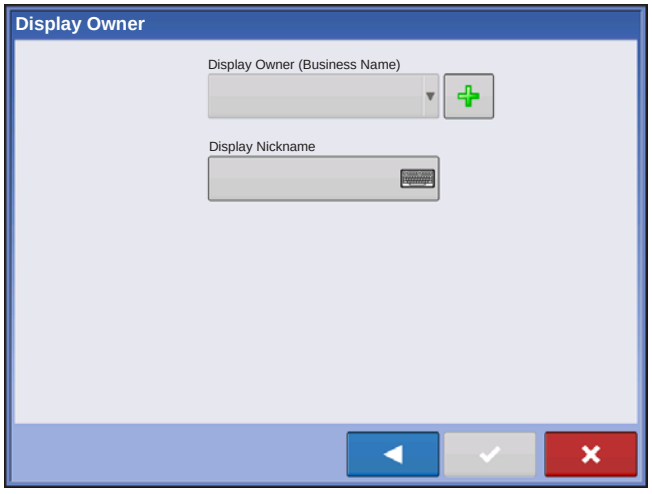

Single Display
Multiple Display
Select “Single Display” if you only have one display in your operation.
Select “Multiple Displays” if you only have more than one display and want to share setup items between displays.

Press “Single Display” button then to continue.

NEW SETUP


New Setup
Import Setup
Select “New Setup” to perform all setup through the display user-interface.
Select “Import Setup” to select an AgSetup file to import setup items from your computer.

Press “New Setup” button then to continue.

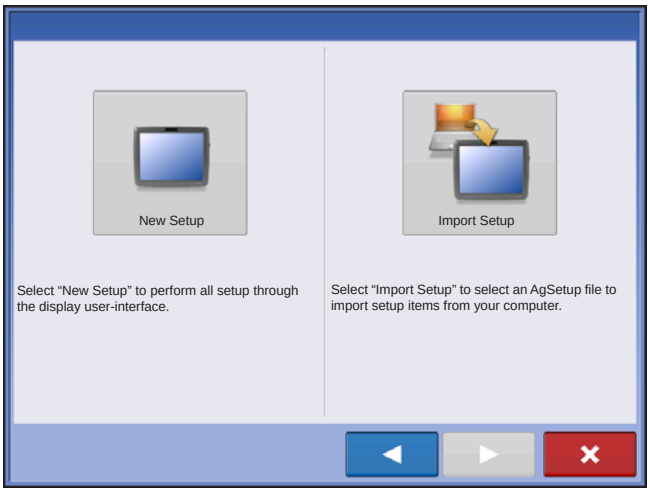


Press to enter a Display Owner (Business Name).

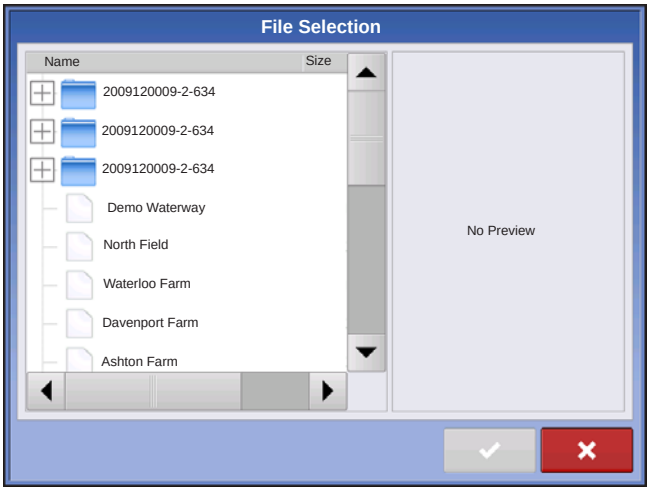
Press to enter a display nickname. Press to continue.

Press to accept the setup and return to Home screen.

IMPORT SETUP


New Setup
Import Setup
Select “New Setup” to perform all setup through the display user-interface.
Select “Import Setup” to select an AgSetup file to import setup items from your computer.

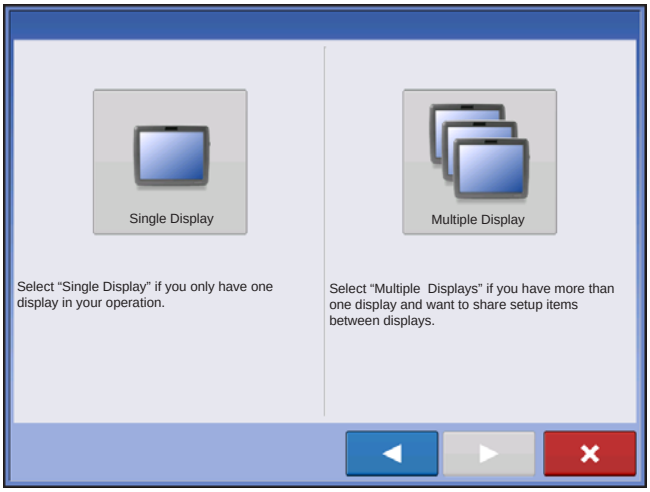
Press “Import Setup” button then ▶ to continue.



Select desired setup file from directory.

Press ✓ to accept the setup and return to Home screen.

MULTIPLE DISPLAY SETUP - FIRST DISPLAY

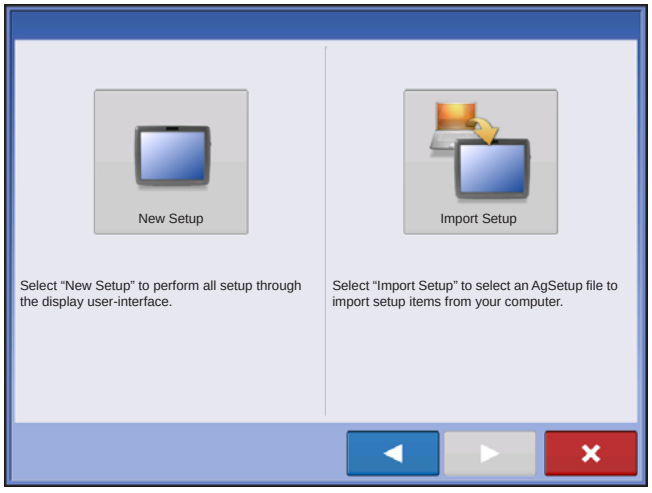

Single Display
Multiple Display
Select “Single Display” if you only have one display in your operation.
Select “Multiple Displays” if you have more than one display and want to share setup items between displays.

Press “Multiple Display” button then ▶ to continue.

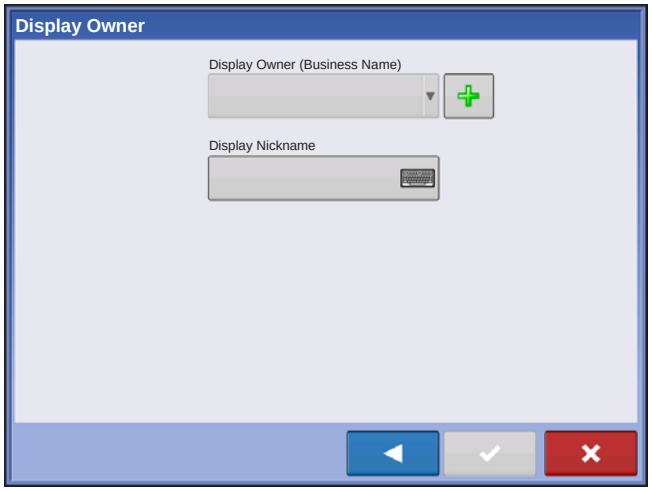
First Display
Additional Display
Select “First Display” to complete the initial startup wizard and export an AgSetup file for importing into additional displays (with version 3.0 or higher).
Select “Additional Display” to import setup items from an AgSetup file from another display that has already been set up.

Press “First Display” button then to continue.

NEW SETUP


New Setup
Import Setup
Select “New Setup” to perform all setup through the display user-interface.
Select “Import Setup” to select an AgSetup file to import setup items from your computer.

Press “New Setup” button then to continue.

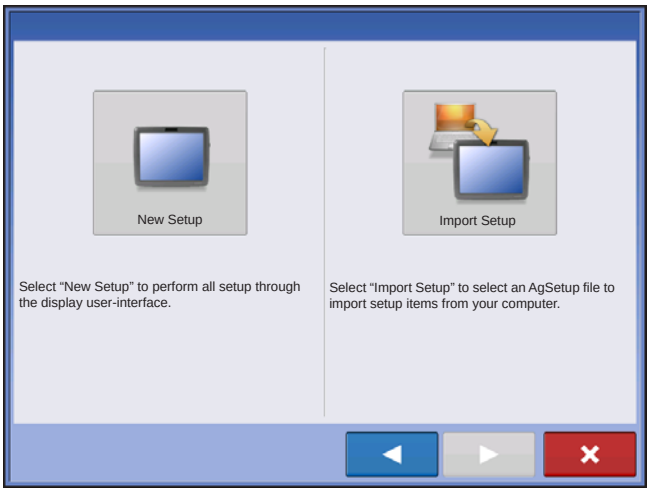


Press to enter a Display Owner (Business Name).

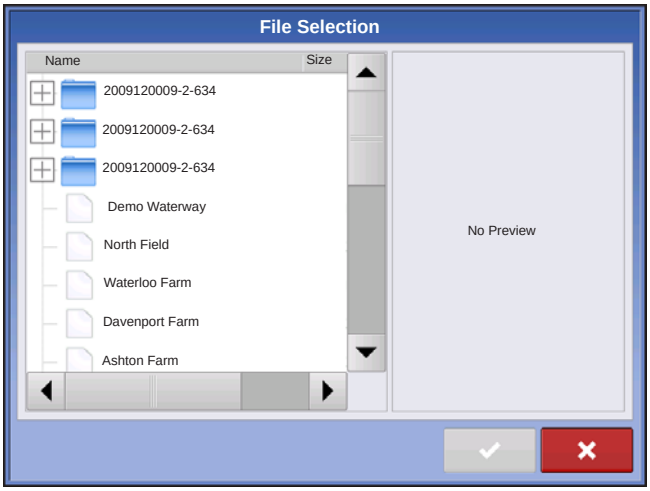
Press to enter a display nickname. Press to continue.

Press to accept the setup and return to Home screen.

IMPORT SETUP


New Setup
Import Setup
Select “New Setup” to perform all setup through the display user-interface.
Select “Import Setup” to select an AgSetup file to import setup items from your computer.

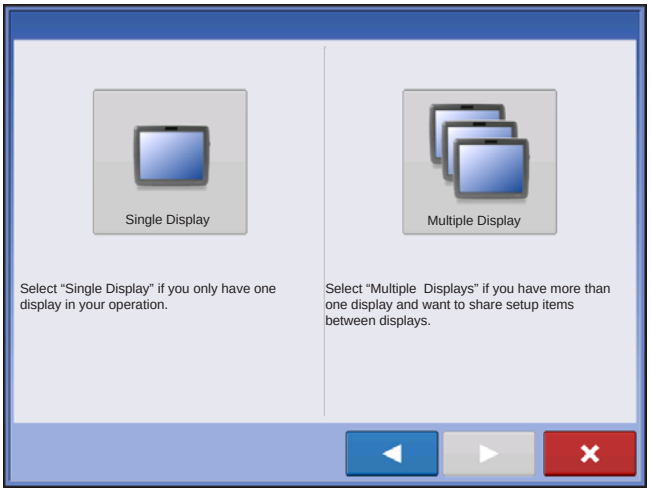
Press “Import Setup” button then ▶ to continue.



Select desired setup file from directory.

Press ✓ to accept the setup and return to Home screen.

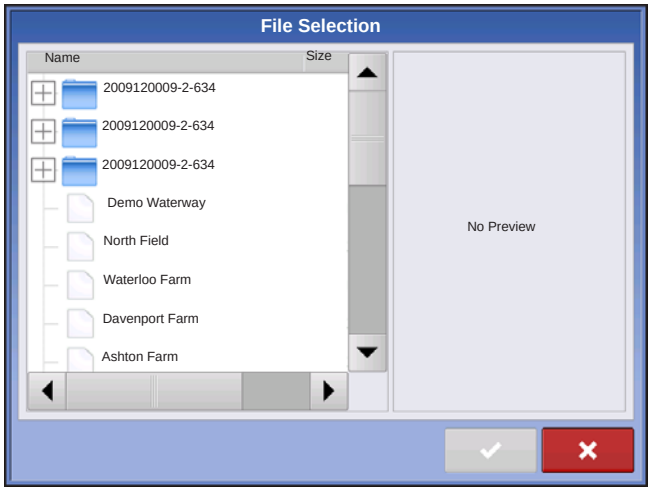
MULTIPLE DISPLAY SETUP - ADDITIONAL DISPLAY


Single Display
Multiple Display
Select “Single Display” if you only have one display in your operation.
Select “Multiple Displays” if you have more than one display and want to share setup items between displays.

Press “Multiple Display” button then ▶ to continue.

First Display
Additional Display
Select "First Display" to complete the initial startup wizard and export an AgSetup file for importing into additional displays (with version 3.0 or higher).
Select "Additional Display" to import setup items from an AgSetup file from another display that has already been set up.

Press "Additional Display" button then ▶ to continue.



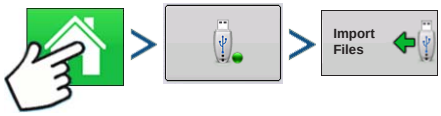
Select desired setup file from directory.

Press ✓ to accept the setup and return to Home screen.

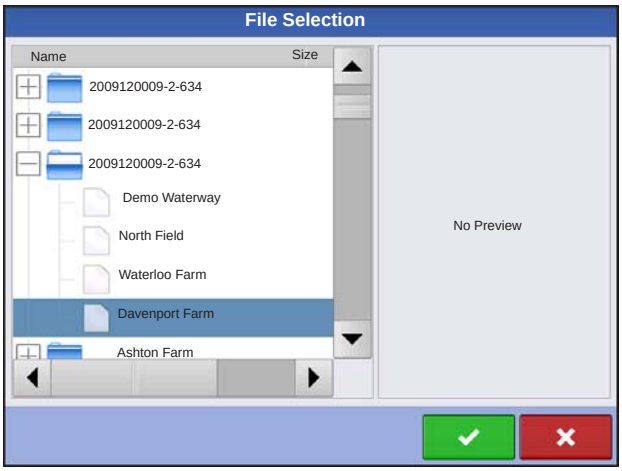
Note: *The business created on the first display, and any other management and equipment items, will be imported to the additional displays.*

IMPORT SETUP DATA

IMPORT FILES



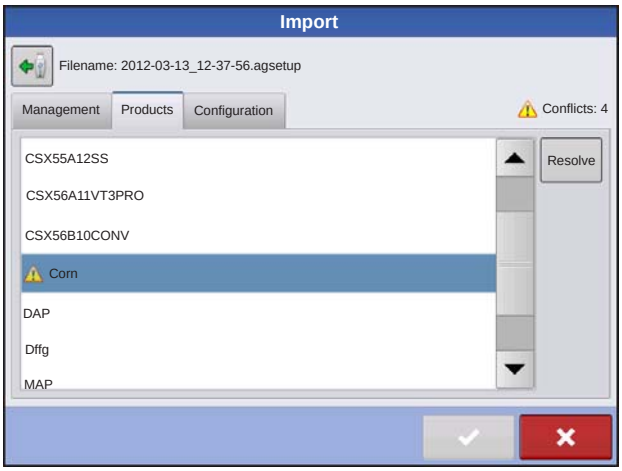
Press: Home button > External Storage button > Import Files



Use the scroll bar to find the file you wish to import.

When a setup file is created it is saved in a folder titled with the displays serial number _nickname. The file will include a date and have the .agsetup suffix.

Select the desired setup file from directory and press .



Highlight item with conflict ⚠

Press Resolve

Conflicts can be resolved by:

- Rename Import
- Rename Existing
- Merge

- Product Mixes and Configurations can not be merged. The Merge button will be grayed out and not selectable for these items.

Once all conflicts have been resolved. press .

Most of the functionality of the display is not available until the basic setup process is completed.

SETUP BUTTONS

The Setup buttons are used to toggle between screens that adjust settings for Configuration, Management, GPS and display.

- **Management button**

  Press to access and edit Grower, Farm, Field and Operator information. For more information, see *"Management button" on page 28.*

- **GPS button**

  Press to adjust Guidance settings, GPS settings, and lightbar settings (if applicable). For more information, see *"Guidance" on page 75*.

- **Display button**

  Press to adjust settings for Time and Date, brightness and volume settings, operating units, language; view features; and also create and restore backups.

DISPLAY BUTTON

Press: Home button > Display button

The Display screen contains the following tabs:

- **General tab**

  displays settings related to Time, Date, display screen settings, operating units, video and display owner information.

- **Display tab**

  contains functionality for setting up a Display Owner and making any needed edits to the owner personal information.

- **Features tab**

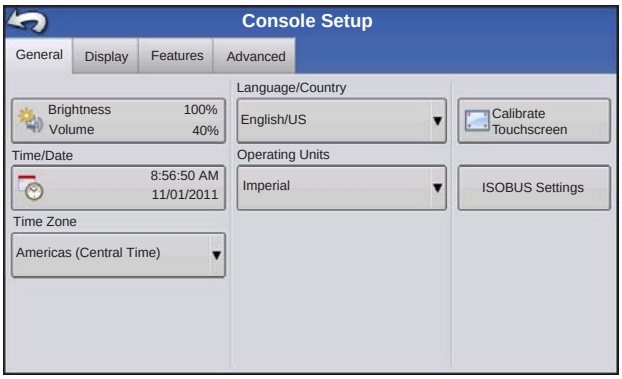
  lists unlocks for a particular display.

- **Advanced tab**

  includes information related to log files and system backups.

GENERAL TAB

Press: Home button > Display button > General tab



The Setup General Tab is consists of the following items:

• Time/Date button

Press button and use ▲ / ▼ to adjust the hours, minutes, A.M./P.M. settings, month, date and year. To make these changes effective, press ✓.

Note: *The display will then shut down immediately. If you do not want to shut the display down, press the Close (Red X) button; however the time/date changes will not be accepted until the display is shut down and restarted.*

• Brightness and volume percentages.

To change these, press the Brightness/Volume button and use ▲ / ▼ to change the percentage of the Display Brightness and Speaker Volume.

• Calibrate Touchscreen.

Press this to launch the Touch screen Calibration wizard. Calibrate the touch screen by following the on-screen instructions.

CAUTION: *Do not use any sharp objects to operate the touch screen or the display may be damaged.*

• Time Zone

Use the drop-down menu to select your time zone.

• Language/Country Selection

Use the drop-down menu to select the language.

• Operating Units

Select either Imperial or Metric.

• Enable Video

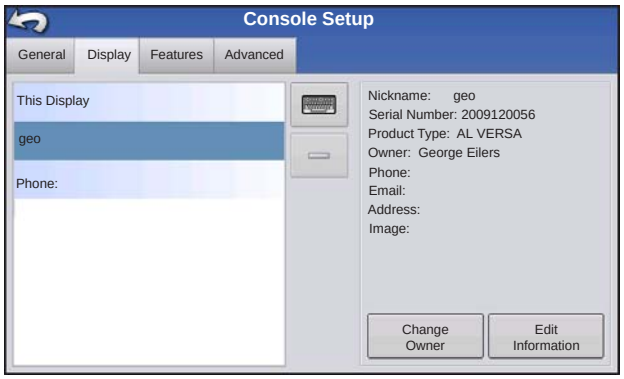
Enables input from up to four video cameras.

• ISOBUS Settings

Enables Virtual Terminal and Task Controller

DISPLAY TAB

Press: Home button > Display button > Display tab



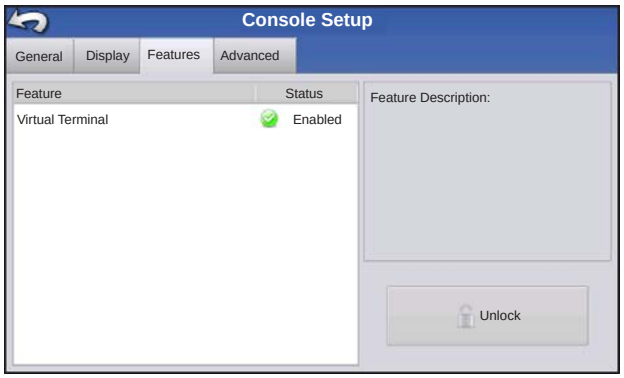
The Display tab contains functionality for setting up a Display Owner and making any needed edits to the owner personal information. The Display Owner information is used in the product application report feature of application rate control.

- Nickname
- Serial Number
- Product Type
- Owner
- Phone
- Email
- Address
- Image
- Change Owner
- Edit Information

FEATURES TAB

Press: Home button > Display button > Features tab

Unlocking Features

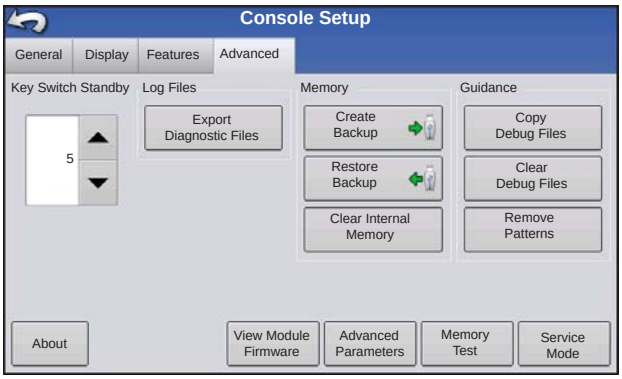


The Features Tab is where you can enter unlock codes. Unlock codes are unique to the serial number of each display and the feature registration number. You must supply these numbers to your dealer when purchasing any unlock codes. Press to enter the unlock code and press to enable the feature.

Note: *Once a feature is unlocked, that feature remains with that display and cannot be transferred to another.*

ADVANCED TAB

Press: Home button > Display button > Advanced tab



The Advanced Tab allows you to specify settings for copying log files; specify Key Switch Standby settings; view and manually upgrade module firmware; and create and restore backup files.

CAUTION: *The* ***Export Diagnostic Files****,* ***Advanced Parameters****,* ***Copy Debug Files, Clear Debug Files*** *and* ***Service Mode*** *functionality on the Advanced Tab is reserved for use by the manufacturer. DO NOT change any of these settings without specific instruction from the manufacturer.*

• Key Switch Standby

This setting allows the display to remain powered up after the vehicle power has been shut down. Instead, the display will switch into standby mode and will appear to be shut off; however the power light will change to an amber color. Pressing the touchscreen while it is in standby mode will immediately turn the screen back on again.

Use ▲ / ▼ to specify a length of time that you wish the display to remain powered up in standby mode after the vehicle power has been shut down.

Note: *When the time you specified in Key Switch Standby is nearly expired, then the amber-colored power light will flash on and off immediately preceding shutdown. If you wish the display to remain powered up for a longer period of time, touch the display to restart the Key Switch Standby countdown.*

• About button

Displays product licensing information and copyright information.

• Log Files

These settings allow you to copy your data in the display.

- **Export by Grower** Press of export log files by growers.
- **Export Data Files**. Press to copy all logged data in the display to the USB drive.
- **Export Data Files on Shutdown**. Checking this checkbox will copy all log files to the USB drive when the display is powering down.
- See *"Export Files" on page 54* for more information.

• Memory

Adjusts information stored in the display's internal memory.

- **Create Backup**. Press to create a backup file of all configuration settings, products, and Grower-Farm-Field Management data structure on the USB drive. Backup files are stored using the .ibk2 file format.
- **Restore Backup**. Press to restore a backup file from the external data drive to the internal memory of the display.
- **Clear Internal Memory.** Press this button to clear the internal memory of the display. The system will present a warning dialog box and ask if you would like to create a backup file prior to clearing the memory.

CAUTION: *Once you clear the system's internal memory, this information is deleted and cannot be restored unless a backup has been made.*

• View Module Firmware. Displays the Module Firmware Management screen, which is a list of all firmware modules and firmware versions that are available for the display.

Note: *The Module Firmware Management list includes module firmware that you may not be running.*

- **Import -** Imports any firmware stored on the USB drive into the display memory.
- **Direct Upgrade** - Upgrades an individual module directly from the USB.
- **Remove** - Removes unwanted module firmware from the Module Firmware Management list.

Note: *Pressing the Remove button does not remove firmware from the module itself. It merely removes the upgrade file from the display.*

• **Remove Patterns**. Pressing this button permanently erases all guidance patterns from the display's memory.

MANAGEMENT SETUP

EVENTS

Events are used to track field operations. New events can be created at anytime and therefore a physical field can be broken into many events or recorded under one.

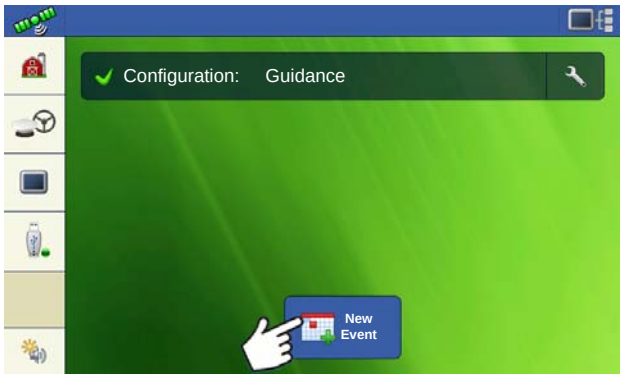
An event contains all coverage maps created while that event was active. Events are automatically named by date and time.

The display can be run in two different modes:

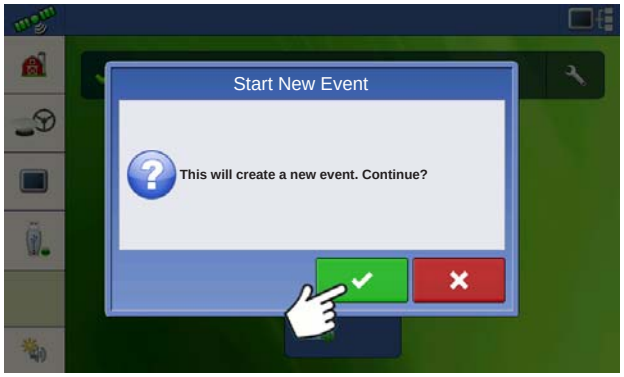
Traditional mode: requires user to specify a Grower, Farm, and Field for the Event. The display associates this information with setup files and logged data. When these files are reviewed or utilized in the future, it provides the operator with a greater depth of information.

Events Only mode: minimizes the setup process so that the display is ready to run in the field with the least amount of setup (just a few button presses).

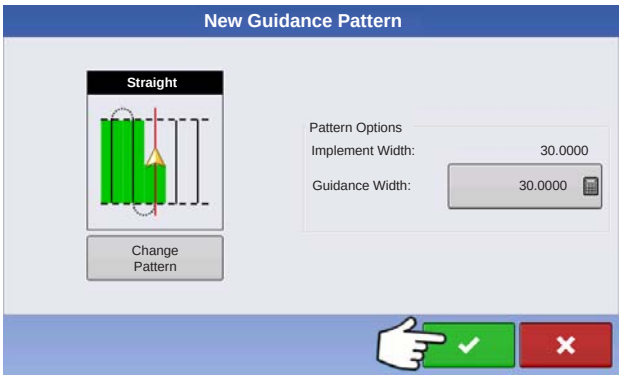
Starting an Event



Press New Event button.

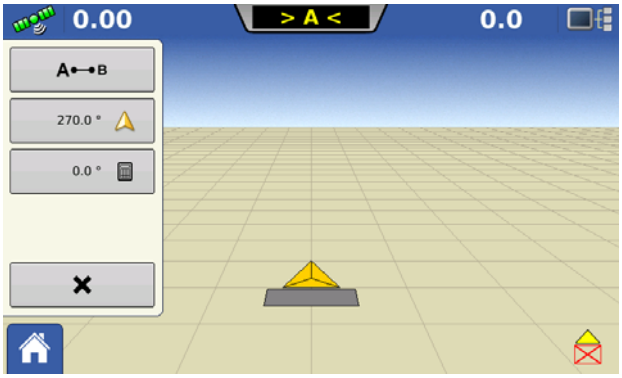


Press Check button to continue.



Choose Pattern and set Pattern Options.

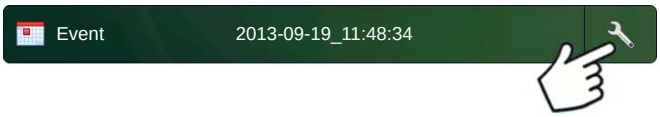
Press Check button to continue.



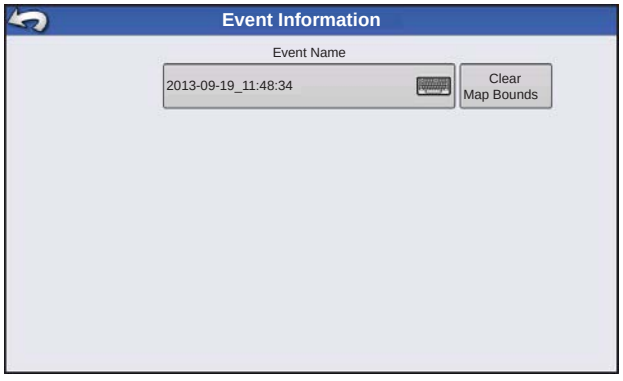
Map screen will appear and user can begin operation.

Managing Events

Edit Event Name and Clear Map Bounds



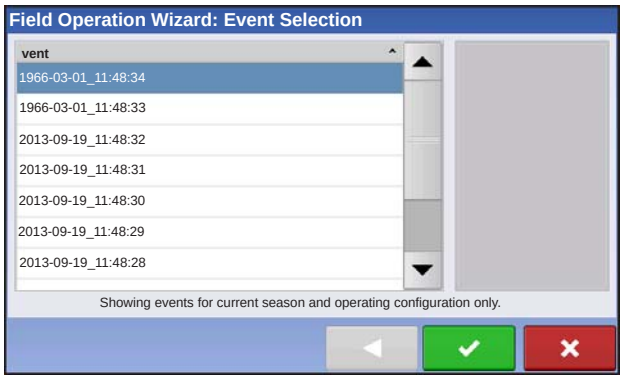
Press Setup button (wrench) on Event bar.



The Event Information Screen allows operator to change the event name and to Clear Map bounds.

Select a Previous Event

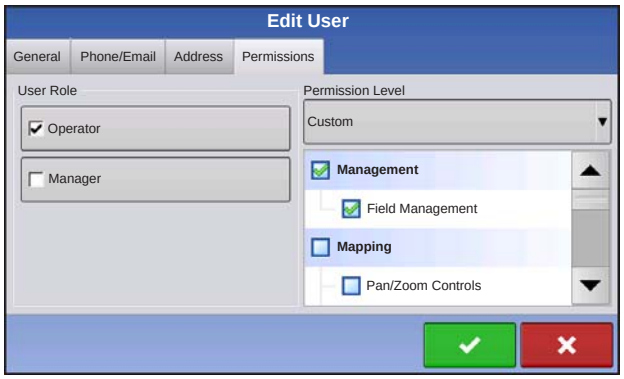
Press event name on Event bar.



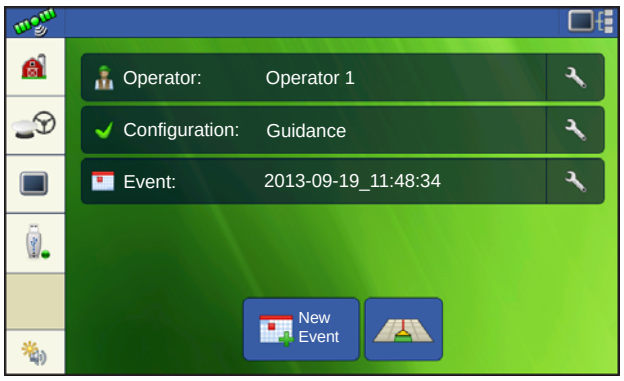
The Field Operation Wizard: Event Selection screen allows the operator to pick a previously created event.

Advanced Functionality Via Permissions

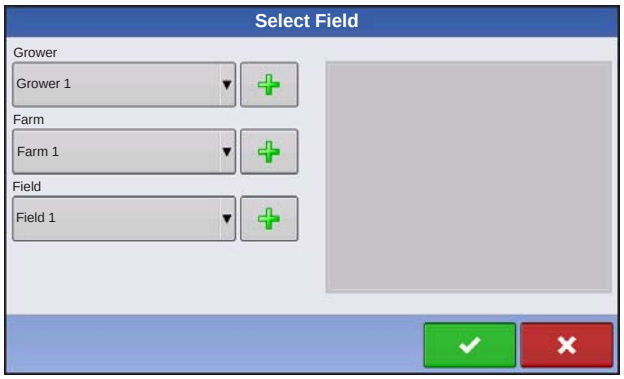
Management (Barn) button > User tab > Select Specific User > Setup (wrench) button



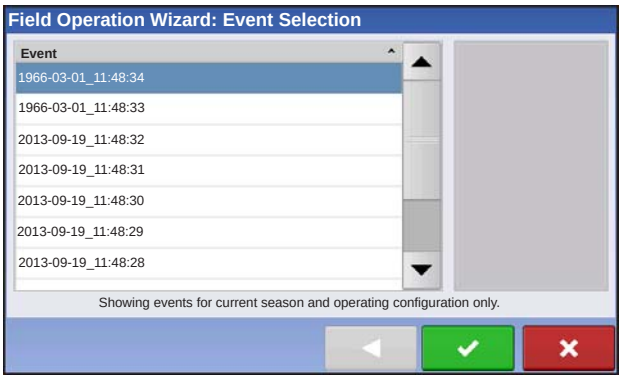
Traditional Field Management can be enabled by selecting the Custom “Field Management” permission. Users setup as Managers automatically have the Field Management permission enabled.



Events will now be tied to a new or existing Field under the Grower/Farm/Field structure.



When creating a new Event, you now select the Field.



The Event selection dialog now shows Grower and Field of each Event.

MANAGEMENT BUTTON

Press: Home button > Management (Barn) button

From this screen the operator can access Grower/Farm/Field, Season, User, and Businesses tabs.

GROWER/FARM/FIELD TAB

Press: Home button > Management (Barn) button > Grower/Farm/Field tab

Grower

The Grower refers to the business or person that the system is in operation for. Contact information can also be entered for each Grower. The Grower information will be passed into mapping software for automatic Grower setup within desktop software.

- **Add button**
  Press to add a Grower.

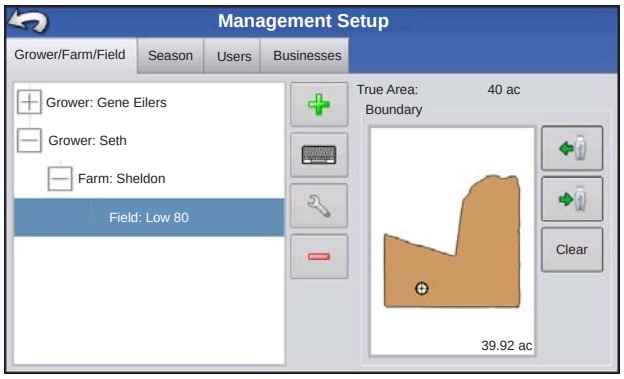
- **Rename button**
  Edit an existing name of a Grower by highlighting that name and pressing button.

- **Setup button**
  Press to enter information for the Grower's Name, Tax ID and Memo.

- **Remove button**
  Press to remove a Grower.

Note: *Personal Information entered at this screen can be added or edited at any time.*

Farm and Field



In the display, farms are subdivided into fields. You can associate Field names with a particular Grower. If the display will be used for multiple Growers, enter each Grower business name and associate the field names with the correct grower when the fields are set up within the system.

In the Field Tab, select a Grower underneath the drop-down menu at the top. Each farm of that particular grower is shown in a list, with the fields within that farm as subcomponents within that list.

- **Add button**

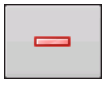
Press to add a Field.

- **Rename button**

Edit an existing name of a Field by highlighting that name and pressing button.

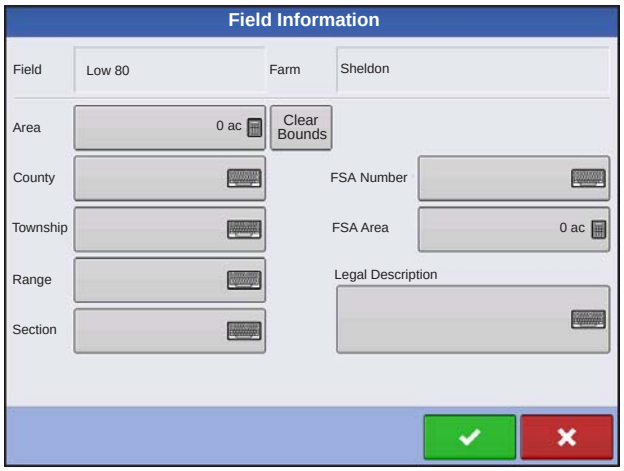
- **Setup button**

Edit the Farm and Field information by highlighting that name and pressing button. The Field Information screen appears.



- **Remove button**

Press to remove a Field.



The Field Information screen opens, showing the name of that field in the Title Bar. Field Name information that can be added or edited by pressing including **Farm**, **County**, **Township**, **Range**, **Section Number**, **Area**, **FSA Number, FSA Area** and **Legal Description**.

- **Area**

shown in the total acres (hectares) of the field.

- **FSA Number**

refers to the U.S. Farm Service Agency's four-digit number assigned to every field.

- **FSA Area**

refers to tillable acres as established by the FSA.

- **Clear Bounds button**

  Press to center the map on the current GPS position.

Note: *The Clear Bounds feature is particularly useful if you have flyer points or have logged a point outside the mappable range of your current location.*

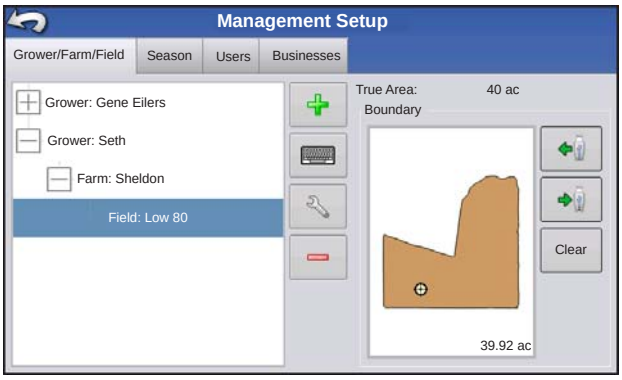
Importing and Exporting Field Boundaries

Boundaries can be created with the display or imported from desktop GIS software. Any boundary files present in the display can also be exported for use in desktop mapping software.

Note: *For more information on creating boundaries, see "Create Boundary" on page 45.*

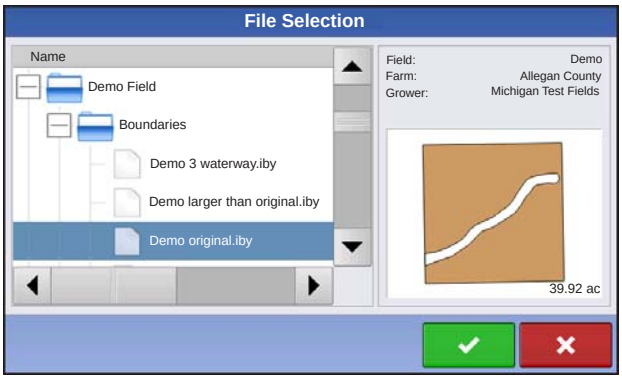
- **USB Import button**

  To import a boundary from the USB drive, first go to the Setup Field tab, highlight the correct field in the Farm/Field list and press the USB Import button.



The File Selection screen appears. Highlight the desired file to import.

Operator can import/export all fields and boundaries at once with an .AGSETUP file. For more information on .AGSETUP files see *See ".AGSETUP" on page 109.*



Press to complete the import process.

• USB Export button

To export a boundary to the USB drive, highlight the correct field in the Farm/Field list and press the USB Export button. At the File Selection screen, highlight the desired field to export.

A screen will appear telling you that the boundary was exported successfully. Press return to the field setup screen.

SEASON TAB

Press: Home button > Management (Barn) button > Season tab

A season is defined as the calendar year that the crop will be harvested. A season has a start and an end date. Creating a season and setting it to active is required prior to the system logging any data.

The seasons are displayed in lists, with the Active season displayed in bold face type. All new data is logged to the active season; therefore a season must be set as Active before you can log any new data to it.

• Add button

Press to add a Season.

• Edit button

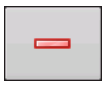
Edit an existing name of a Season by highlighting that name and pressing button.

• Set Active button

Press to set the season selected in the Summary list box to the active season.

• Season Reminder button

Press to set the date that the system will prompt the operator to create a new season.

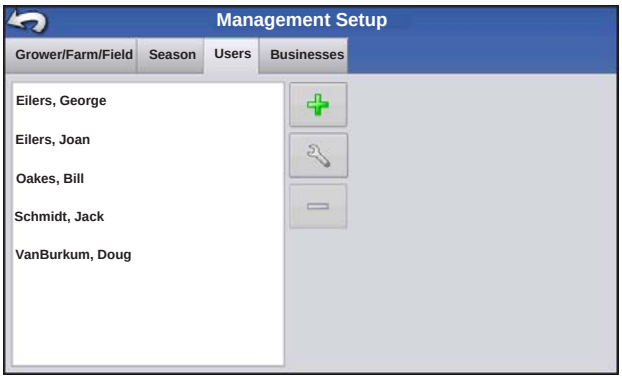


• Remove button

Press to remove a season.

USERS TAB

Press: Home button > Management (Barn) button > User tab



Management Setup screen - User tab allows user to add, modify, or delete users from the display.

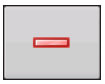
Add a User

Press: Home button > Management (Barn) button > User tab > Plus (+) button

1. Enter first name and/or last name (have to enter a first or last name, recommend entering both)
2. Enter applicator license (optional). Press ▶ to continue.
3. Select Operator or Manager (can select either, none, or both). For more information on selecting Operator/Manager and setting up permissions, see *"Permissions" on page 33*. Press ▶ to continue.
4. Enter and verify password (optional)
   - Locks the displays ability to load/change operating configurations, access setup and USB, if Manager has a password set
   - Leaves display unsecure unless each manger sets a password
   - Warning message appears if passwords do not match
   - No restriction for password format (can be any combination of letters, numbers, and special characters)
   - Case sensitive
5. Press ✔ to accept

• Setup button

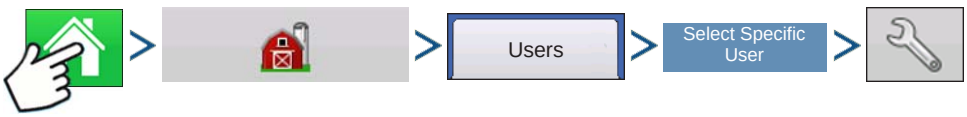
Press to edit operator information by highlighting that name and pressing button. Setup button allows user to edit information originally entered when profile was added. Edit button also allows access to more phone, email, and address information.



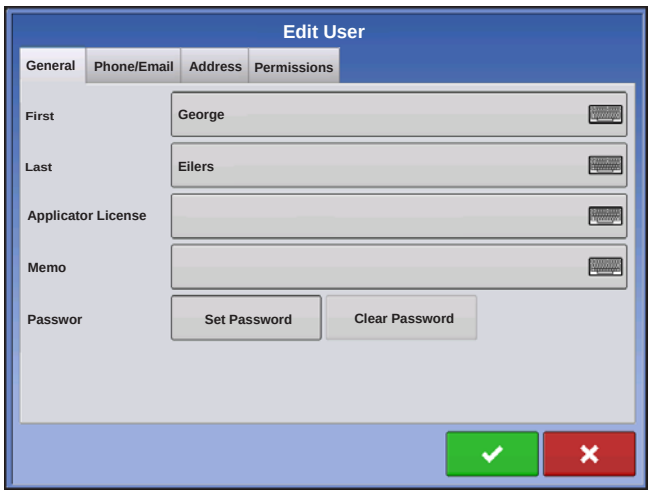
• Remove button

Press to remove an operator.

User Setup button



Press: Home button > Management (Barn) button > User tab > Select Specific User > Setup (wrench) button



General tab

- First and Last Name
- Set and Clear Password
- Applicator License
- Memo

Phone/Email tab

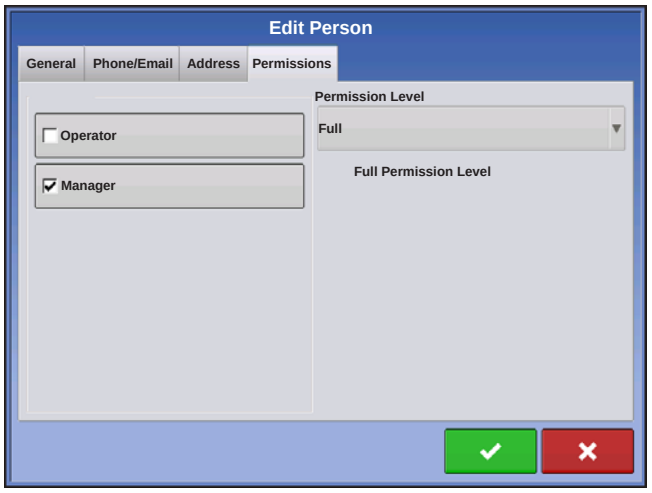
- Home Phone
- Mobile Phone
- Business Phone
- Home Email
- Business Email

Address tab

- Address
- Extended Address
- City/Locality
- State/Province
- Country
- Postal Code

PERMISSIONS

This is an optional function that defines what access the user will have in the display. Users are defined as Operator or Manager (can select either, none, or both).



Operators

- Have full or limited access
- No access to USB or Setup options, unless also set as a Manager
  - Can import from USB from Map Screen (RX, patterns, boundaries)
- Manager sets up privileges

Managers

- Full access to the display settings and functions
- Only user that can change the selected configuration
- Ability to log out of the display

System can be set up with operators only. Passwords are not used when set up this way.

Permission Level For Operators

Full Permission

Provides full access to features and functionality on the map and home screen. A user, set only as an Operator, cannot select a different configuration and cannot access USB or Setup, when a manager is setup in the display.

Basic Permission

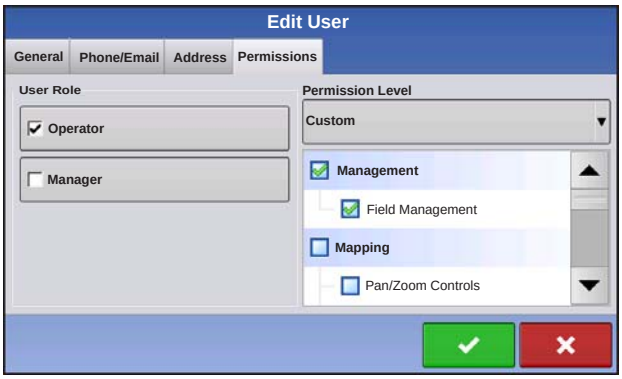
No access to:

- Legend Tab on Map screen
- Marks Tab on Map screen
- Boundary Tab on Map screen

Limits Guidance options to:

- Creating & loading Straight AB or SmartPath patterns
- Nudge
- Remark A
- Save or reset guidance line

Custom Permission



Can allow or deny the following options:

- Management screen
- Pan/Zoom controls
- Legend Toolbox
- Marks Toolbox
- Boundary Toolbox
- Guidance Toolbox
- Minimize Toolbox
- Each individual guidance pattern
- Ability to remove guidance patterns

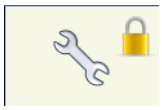
Display uses Traditional mode when Field Management is checked. Events using the Traditional mode are tied to the Grower/Farm/Field structure.

Display uses Events Only mode when Field management is unchecked.

Management, GPS/Guidance, Console Setup, and External Storage Buttons are locked for Operators.

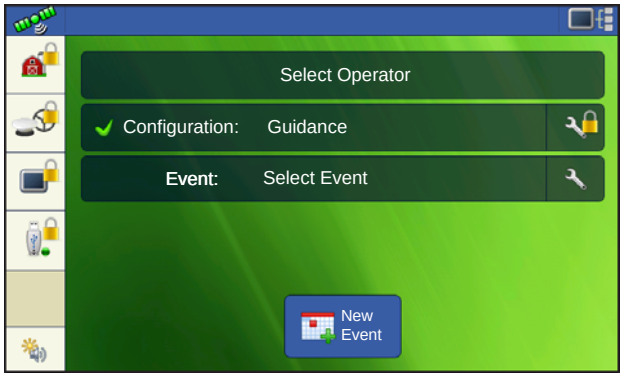
A manager can access these buttons by pressing the button and inputting their password.

A User can be setup as an Operator and Manager to have the same access as a Manager.



Setup and USB buttons are locked for Operators if a Manager is present in the system. A Manager can access setup menu and USB by pressing button and inputting their password.

A User can be setup as an Operator and Manager to have the same access as a Manager.



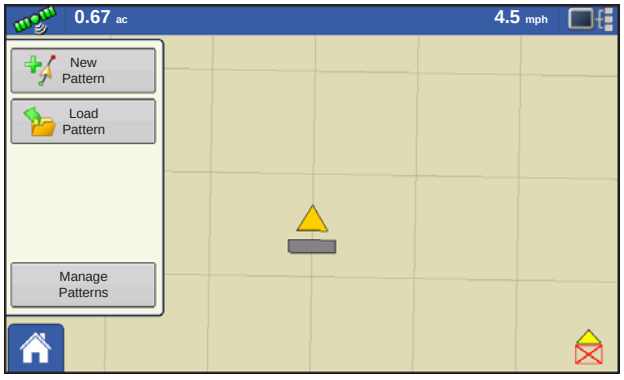
The Home and Map screen will appear different depending on how you assigned user permissions. For setting up users with permissions see *"Users tab" on page 31.*

Basic Permissions - Home screen

- No Summary screen
- Setup and USB buttons are locked (as indicated by a padlock icon on those buttons)
- Brightness and volume are on home screen - settings saved per operator
- Operator Change - Option to continue or start new operation when operators change

Full Permissions - Home Screen

- Summary screen button is present
- Setup and USB are locked
- Management, GPS/Guidance, Console Setup, and External Storage Buttons are locked for Operators.
- A manager can access these buttons by pressing the button and inputting their password.



Map screen appearance of an operator with Basic permission. Only the Guidance toolbox is present.

Operator can

- Create guidance lines
  - Straight AB
  - SmartPath
- Nudge
- Guidance setup

ACCESSING SETUP MENUS

1. Press locked button (Management, GPS/Guidance, Console, or USB).
2. Select Manager from drop-down menu. Press .

3. Enter password. Press .

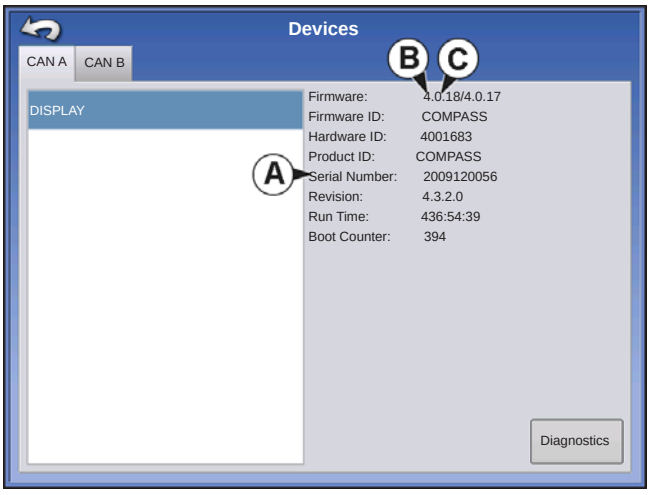
Now have access to the setup menu.

•

FORGOTTEN PASSWORDS

When a Manager forgets his password he won't be able to access Setup.

Tech Support will be able to generate a password based on the serial number and firmware of the monitor.



Password generator will require the following information:

• (A) Display serial number

• (B) Major revision

- First digit of firmware version

• (C) Minor revision

- First digit of firmware version after decimal.

Example:

Version 4.5

Major = 4

Minor = 5

Only needed when a Manger forgets their password and works within the display until firmware is upgraded.

How will Tech Support identify if the person calling in is a Manager or not?

They will ask the caller, “Are you a Manager in the display?” If the customer answers yes, Tech Support will generate the password. If the customer answers no, Tech Support will require a Manager to authorize the display to be unlocked.

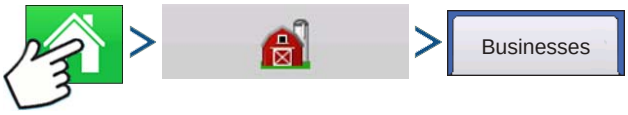
What if a customer doesn’t want to risk forgetting passwords and generating new ones?

A display does not need to be locked with a password. The display can be operated as it has been in the past without passwords. Operators can also be setup with limited or customized access without passwords.

Tips

- Managers, keep a record of all passwords set in the display.
- Operators, write down your personal password.
- To avoid Operators obtaining unwanted access to a display, instruct them to call a Manager for help with passwords before Tech Support.

BUSINESSES TAB



Press: Home button > Management (Barn) button > Businesses tab

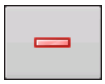
The businesses are displayed in lists, with the Active business displayed in bold face type. All new data is logged to the active business; therefore a business must be set as Active before you can log any new data to it.

• Add button

Press to add a business

• Edit button

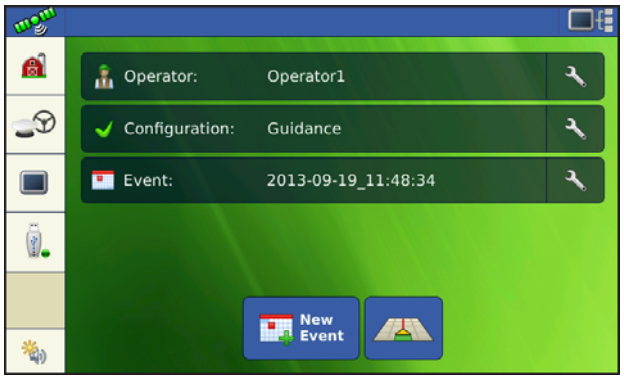
Edit an existing business by highlighting that name and pressing button.



• Remove button

Press to remove a business.

FIELD OPERATIONS



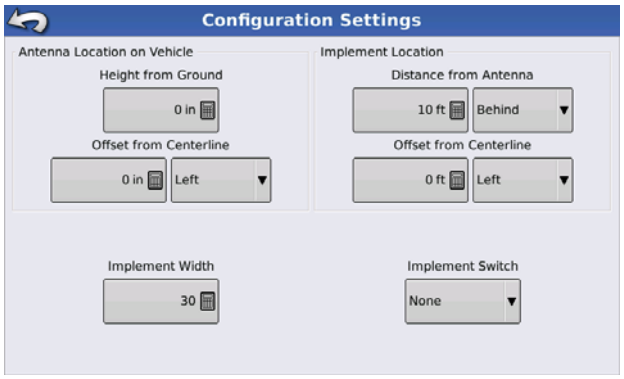
After you have created an Event, the Home screen will appear.

Operator button - Allows user to select a machine operator from the drop-down list. Machine operator information is logged with all field operations. Operator information may be entered in Management Setup at *"Management button" on page 19.*

User also has the option of setting the display to show the operator selection on startup. If the active operator has a password, the operator selection will always be displayed on startup.

Pressing the wrench on the end of the operator button allows user to edit operator information.

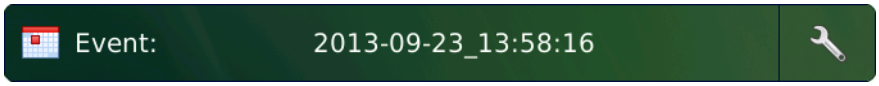
Configuration button - Selecting the wrench at the end of the button allows user to set or adjust configuration settings.



GPS offsets describe the position of the GPS receiver relative to the vehicle and the implement.

Implement width – Allows the user to adjust the working width of the on-screen implement for accurate coverage mapping

Implement Switch – Allows the user to configure an implement switch for triggering area on/off based on the status of an implement switch.

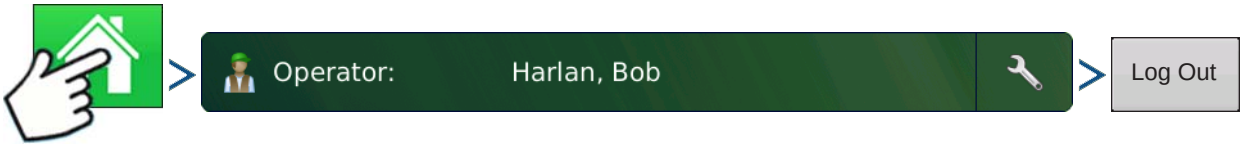


Event button - Allows user to select an event from a list. Selecting the wrench at the end of the button allows user to rename event or to clear bounds.

New Event button - creates new event

Map button - opens the map screen

Operator Log Out



Press: Home button > Operator: button > Logout button

Users that are both a Manager and Operator can logout which locks Setup and USB access and an operator must log in before an operation can be performed.

Run Screens

The task bar displays buttons relating to various functions of the display. These buttons and status indicators include Home, Mapping, Autoswath, Logging, and Auxiliary Input Status. These buttons are shown in front of a green background when you are at that screen; otherwise they are shown in front of a blue background.

Home button - Pressing the Home button takes you to the Home screen.

Map buttons - Pressing anywhere on the map activates map buttons.

ZOOM DETAILS

ZOOM TO EXTENT

PERSPECTIVE VIEW

Note: *The Perspective View is only available when guidance is active.*

Area Logging Status button - Pressing this button turns logging on and off.

ON

OFF

The Engage icon shows that the autosteer system is on, off, or off but ready to engage. The appearance of this icon displays the following:

Engage - ON

Green if the autosteer system is on.

Engage - Ready

Grey if the autosteer system off but ready to engage.

Engage - Not Ready

Grey with a red circle and slash if the autosteer system is off and unable to engage.

Note: *For more information, see "Guidance" on page 75.*

GPS SIGNAL INDICATOR

The GPS button in the upper left-hand corner of the Map screen, displays the following colors:

Differential GPS

Green if you are receiving a differential GPS signal

GPS - No differential

Yellow if you are receiving GPS, but no differential signal

No GPS

Grey if you are receiving no GPS signal.

The Flex Mode icon appears for ParaDymes and GeoSteers using Flex Mode. Flex mode provides continuity of position solution to maintain automated steering by seamless flexing (transitioning) to a lower accuracy mode when a higher accuracy mode is lost; such as loss of the RTK radio link.

Flex Mode - ON (GREEN)

Flex Mode - Exceeded (YELLOW)

Note: *For more information, see the ParaDyme Insert.*

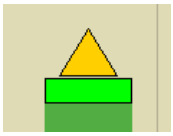
The Device Information button opens screens that display Device Information, Memory, Display, and display diagnostics.

Note: *For more information, See "Device Information" on page 57.*

Vehicle Icon - Zoom to Extent

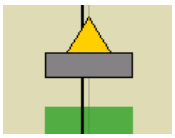
The Vehicle Icon is shown by an arrow inside a circle if the Map screen is viewed in Zoom to Extent.

The vehicle appears as a gold-colored triangle if the Map screen is viewed in Zoom Detail. The appearance of the zoomed-in icon changes depending upon the data being logged in the field.



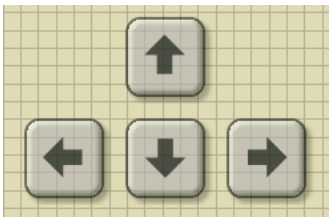
Vehicle Icon - logging

If the vehicle is logging, the implement icon appears as a green bar behind it.



Vehicle Icon - not logging

If the vehicle is not logging data, then the implement icon appears as a grey bar.



Press the grid area of the Map screen, and four arrow icons appear at the bottom right of the Map screen. An example showing these arrow buttons is at left. Pressing these arrow icons will move the center of the Map screen in the direction of the arrow button.

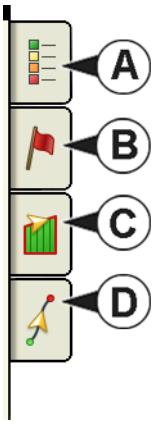
The Zoom Tool icons, which resemble a magnifying glass, are shown at the right-hand side of the Map screen.

Pressing the zoom tool with the plus sign increases the scale of the Map screen.

Pressing the zoom tool with the minus sign decreases the scale of the Map screen.

Pressing the zoom tool with the four arrows underneath re-centers the Map screen and brings its scale back to the default.

MAPPING TOOLBOX



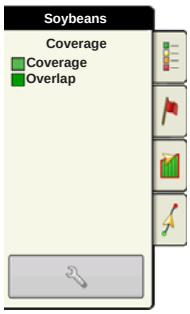
At the upper left hand side of the Map screen is the Mapping Toolbox. Press any of the four buttons on the toolbox and it expands. The toolbox consists of the following buttons:

- **(A) Map Legend**
- **(B) Map Markers**
- **(C) Field**
- **(D) Guidance**

The Map Legend, Map Markers and Field buttons are explained in the rest of this chapter. The Guidance button is described in *"Guidance" on page 75*.

Map Legend tab

Press the Map Legend button at the top of the Mapping Toolbox, and the Legend appears.



Map Legend - Coverage

Legend Select — Press the Legend Setup (wrench) tool, and the Legend Select screen appears. Here you can adjust Legend Settings, clear the map

- **Clear Map**

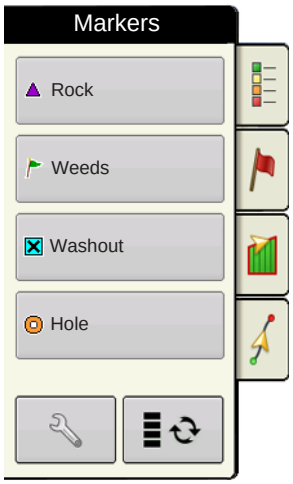
  Permanently removes on-screen map from the active field operation, but the log data will still be exported to the USB drive.

CAUTION: *Once you clear the map, this information cannot be retrieved.*

- **Load Reference**

  Loads a list of maps of previous operations performed in that field.

Markers tab

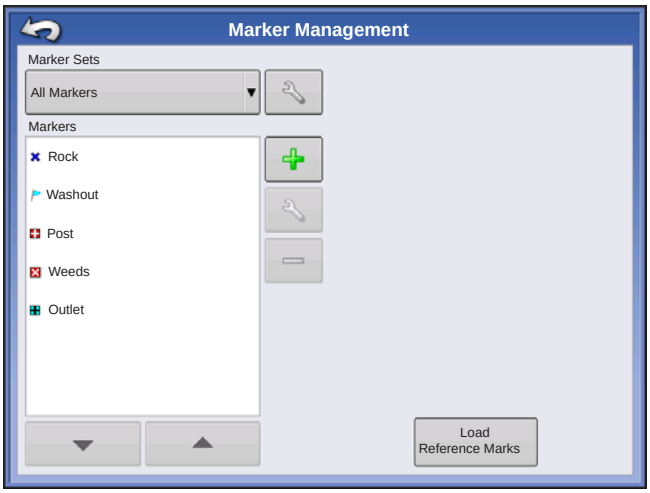


Edit Markers

Markers are a collection of point objects that are available on the Map Markers tab of the Mapping Toolbox. Map markers allow you to map points on the go in order to identify specific features within a field. Press an individual marker to indicate a Map Marker on the Map screen.

If all of the Markers that you created are not immediately visible in this screen, use the Cycle Markers button to view more that you created.

Cycle Markers



Marker Sets

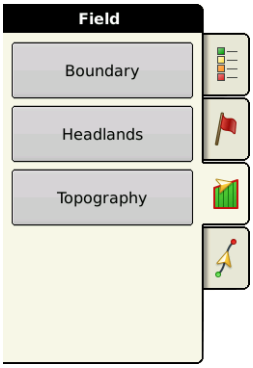
Pressing allows operator to create, name, and delete marker sets.

Markers

- Press to add a marker.
- Press to edit a marker.
- Press to remove a marker
- If you have numerous map icons, you can cycle through them by pressing / .

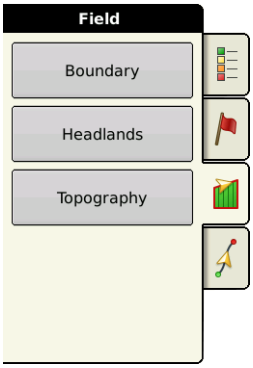
- When creating or editing a marker, check the **Georeferenced Note** button if you wish to add a Field Note that is referenced to the current GPS position when that marker is used.

Field Tab

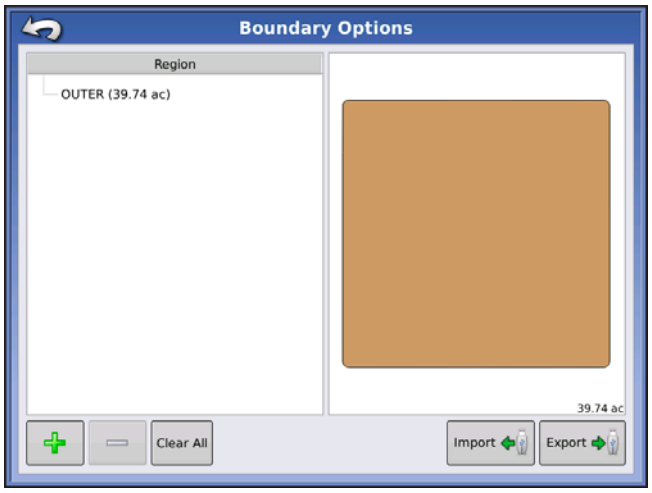


Field tab allows the user to setup boundaries, headlands, and topography.

Boundary



Press the Boundary button on the Field tab to access the Boundary Options screen.



On the Boundary Options screen, you can Import Boundaries, Export Boundaries, and Clear All Boundaries.

Pressing on the Boundary Options screen opens the Boundary Settings screen.

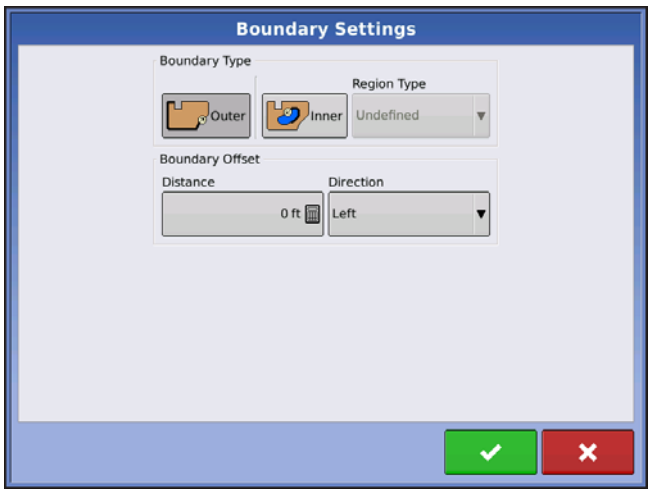
Highlighting an existing region and pressing on deletes that region.

Use Import and Export buttons to move regions to and from USB drive.

Clear All Boundaries. Press **Clear All** to permanently delete all Boundary information for that field.

CAUTION: *Once you clear this information, it cannot be retrieved.*

Boundary Settings



Underneath the Boundary Type area, you have the choice of creating either an Outer Boundary or an Inner Boundary.

• Outer boundaries delineate the borders of an entire field.

• Inner boundaries mark specific features within that field, such as waterways or buildings.

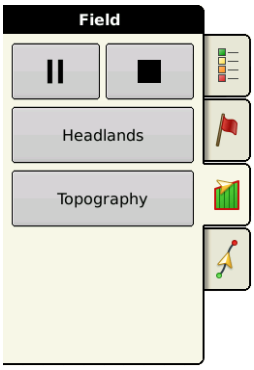
Create Boundary

1. Choose whether to create either an Outer boundary or Inner boundary by pressing one of the two Boundary Type buttons.

2. If you chose to create an Inner Boundary, use the Region Type drop-down menu to choose the type of boundary. Choices include: **Roadway**, **Body of Water**, **Waterway**, **Buildings** or **Undefined**.

3. The Boundary Offset feature enables mapping a boundary at a user-defined distance to the left or right of the GPS antenna center line. If desired, specify a Boundary Offset distance by choosing a direction and distance from the GPS antenna center line.

4. Press to start the boundary.



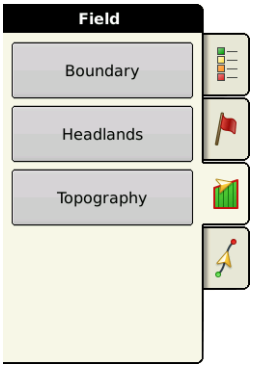
5. During the creation of a boundary, the Pause/Resume button and Stop button appear at the top of the Field tab.

6. Press the **Stop** button to complete the boundary. At the Boundary screen, choose whether to **Save**, **Resume** or **Discard** the boundary.

Pause Boundary

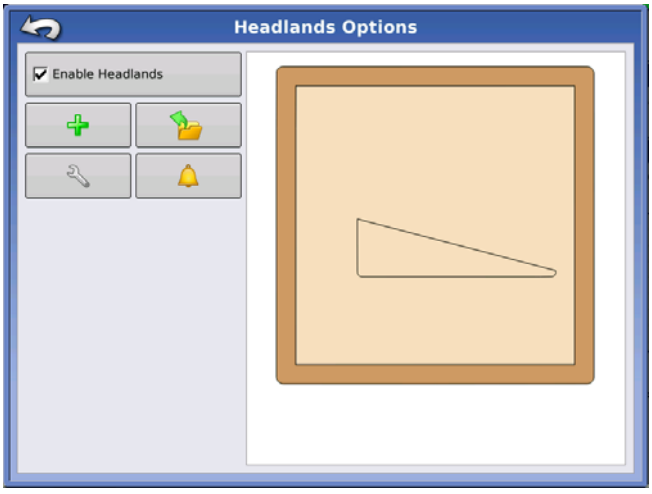
When creating a boundary, you can use the Pause Boundary button to create a straight line between two points. To do this, drive the vehicle to a point, press the Pause Boundary button, then drive to the second point. When you press the Resume Boundary button, a straight line is created between your current point and your pause location.

HEADLANDS



Press the Headlands button on the Field tab to access the Headland Options screen.

A Field Boundary is required to create a headland.

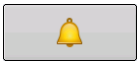


Enable Headlands - use checkbox to turn Headlands functionality on and off

Add Headland

Load a Headland

Edit Headland

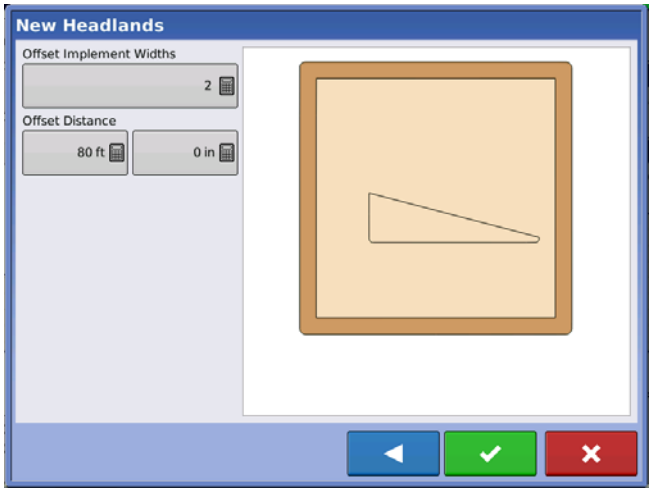
 Alarm Settings

Add a Headland

Press on Headlands Options screen.

Select Headland Type from drop-down box.

Headland Types

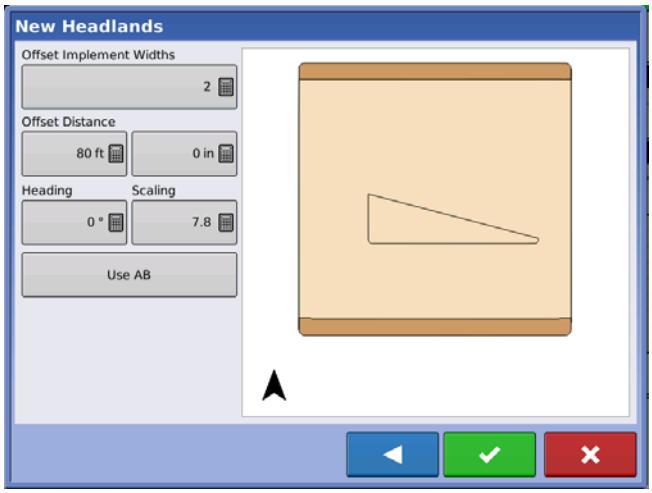


All-Around

Offset Implement Width - number of implement widths used to set the headland width

Offset Distance - distance used to set headland width.

Press ✓ to accept.



Top Bottom

Offset Implement Width - number of implement widths used to set the headland width

Offset Distance - distance used to set headland width.

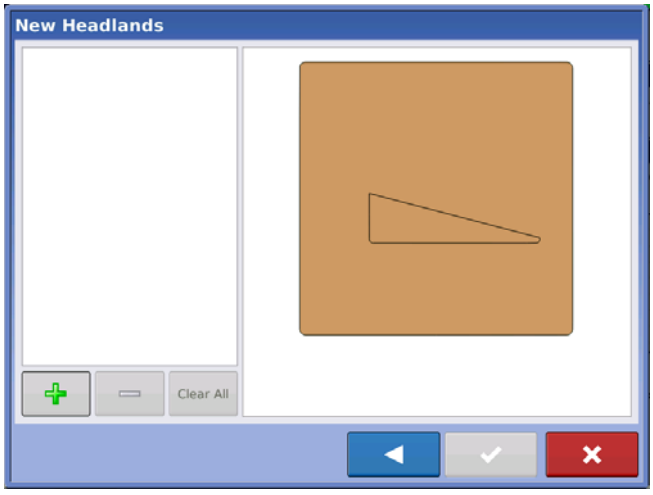
Heading - used to generate boundary, headlands are created perpendicular to heading

Scaling - sets the amount of variation that is allowed (from perpendicular) to include part of field boundary in the headlands

Use AB - select AB line to set heading for determining headlands

▲ Shows the heading used for Headland creation.

Press ✓ to accept.



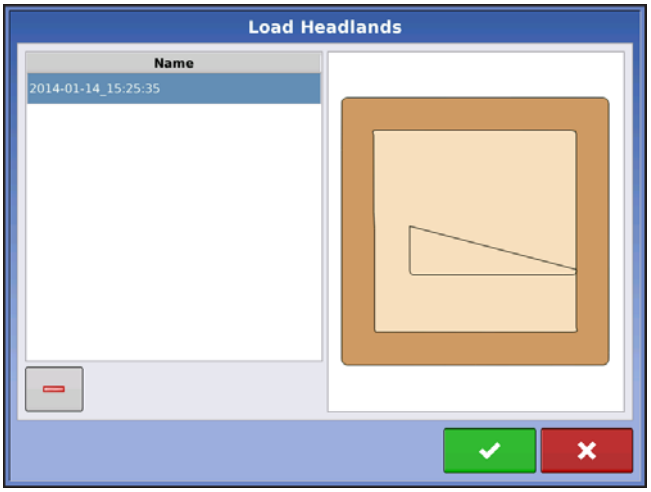
Driven

1. Select **Driven** from drop-down menu and press ▶ to continue.
2. Press ✚ on New Headlands screen.
3. Input Headland Offset Distance and Direction (Left or Right). Press ✓ to accept.
4. Drive Boundary

- ⏸ pause
- ▶ resume recording after pausing
- ■ stop recording

5. Save, Resume, or Discard
    - Save
        - ***-a.*** *Press Save button*
        - ***-b.*** *Default name is time and date. Press* *to change name.*
        - ***-c.*** *Press* *to accept or* *to discard boundary.*
    - Resume - resume creating boundary
    - Discard - discards boundary and returns display to map screen

Load Headlands

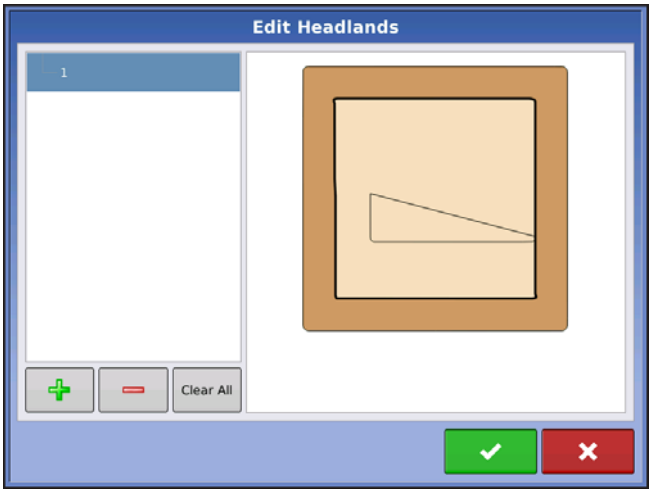


Press Load Headlands button.

Select a headland from list.

- Press to delete selected headland
- Press to return to Headland Options screen
- Press to load selected headland.

Edit Headlands



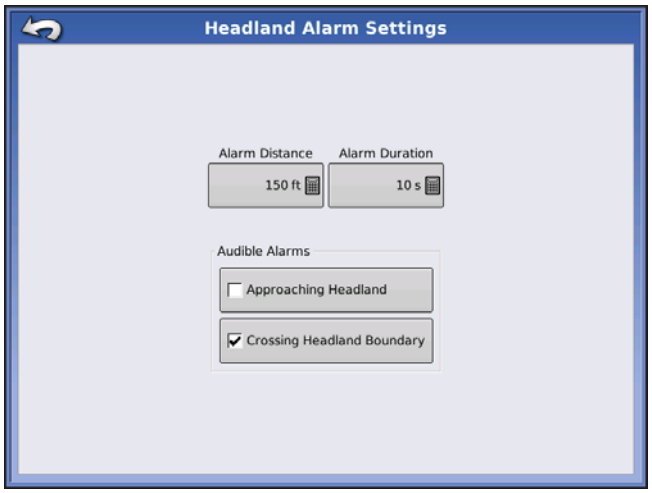
Press Edit Headlands button.

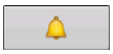
Select a headland from list.

- Press to add a driven headland.
- Press to delete selected headland.
- Press to delete all driven headlands.
- Press to return to Headland Options screen.
- Press to load selected headland.

This screen will vary depending on type of headland.

Headland Alarm Settings



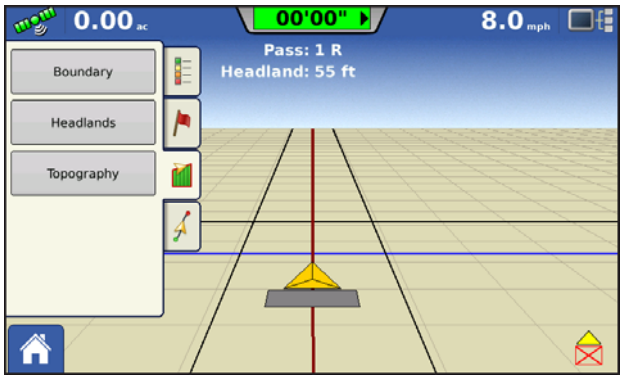
Press Headland Alarm Settings button. 

Alert Distance - distance from approaching headland at which display will warn user of upcoming headland

Alert Duration - time length from approaching headland at which display will warn user of upcoming headland

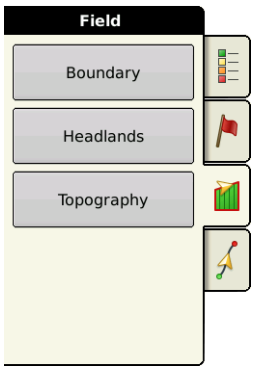
Audible Alarms

- Approaching Headland
- Crossing Headland Boundary



Map Screen with Headlands

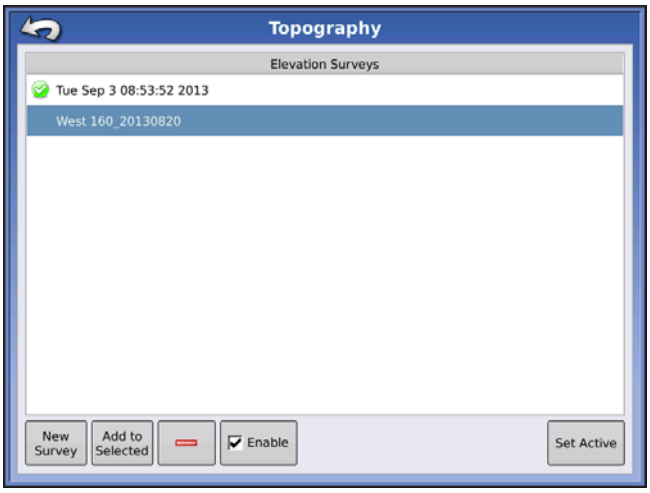
Topography



The display allows you to record points that can be used to make a reference layer that is relative to the elevation throughout the field. This requires that you have an RTK GPS signal to collect the accurate elevation data.

You can also import data from mapping software such as SMS Advanced via .agsetup files.

Pressing the Topography button takes you to the Topography screen which allows user to setup Topography functionality.



Topography screen

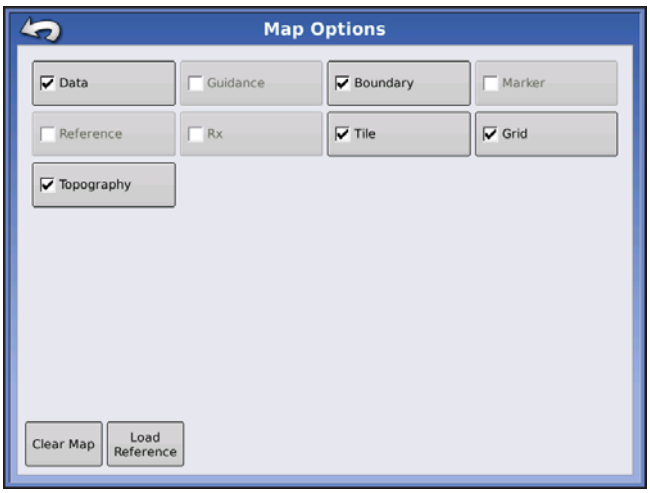
New Survey button - press to create a new elevation survey

Add to Selected button - press to add to an elevation survey

Minus (-) button - press to delete a topographical survey

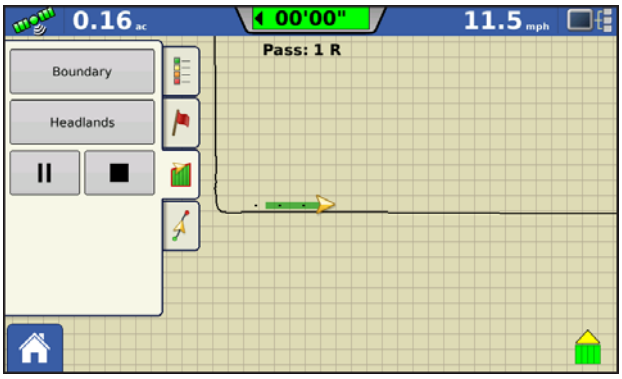
Enable checkbox - press to turn elevation reference layer on/off (Enable checkbox functions the same as Topography checkbox in Map Options screen - shown below.)

Set Active - select the desired survey from list and use button to set as active.



This topography layer can be turned on/off as a reference layer during any operation using Enable checkbox on Topography screen (shown above) or using the Topography checkbox on the Map Options screen (see ***"Map Legend tab" on page 42***).

This can provide you with valuable information in regards to the highs and lows of a field when you may not be able to visually tell with the naked eye. Surveying and Tiling operations will probably benefit the most with respect of where to place the mains and laterals in a field.



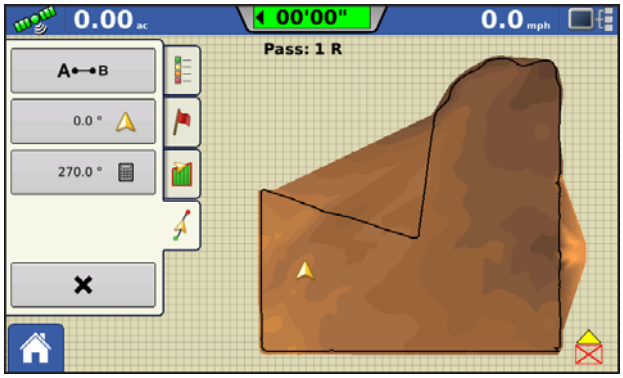
If you have RTK GPS reception, you are allowed to collect an elevation survey. This will allow you to collect the Lat/Long and elevation values as you traverse the field. A point will be dropped every 3 meters as you drive regardless of speed, or direction. If you are collecting during operations like planting or application using autoswath, it will also log points outside the boundary of the field (i.e. through a grassed waterway) to get the most information throughout the field.

The following are suggestions to get the best possible elevation survey for a given field. Following these recommendations will provide the best results for your field.

- Keep swaths in the field to 60ft (19 M) or less, the closer the better
- Driving a dedicated route at the lowest points in a field (i.e. lengthwise of a grassed waterway) then traversing the field in regular swaths will provide the best detail of the field
- If surveying with the tile plow antenna, ensure that the plow is in the fully raised position
- Driving too fast with Mounted plows, can cause bouncing and affect quality

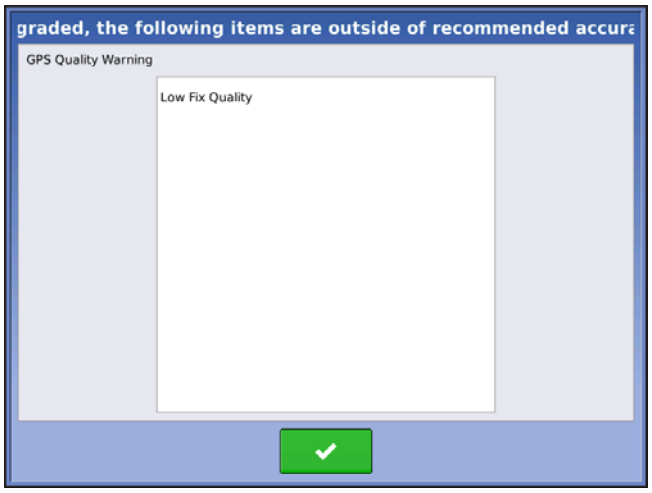
• Surveying with harvesting equipment can provide streaked maps as the hopper filling and unloading can affect the height of the antenna

When collecting elevation surveys, you can collect entire fields, or smaller subsets of a field. This will allow you to show greater detail for small sections, or the entire field based on your needs. You can also add points to existing elevations surveys and save them. Only one elevation survey can be active at a time, when exported as an.agsetup, or.agdata file, this will be the survey that is exported. Non-active surveys will stay in the display. At any time you can remove an elevation survey, and collect a new one.



After these points have been collected, they will be converted into a surface layer in which you can define the color scheme Red, White, Blue, or Brown-Tan. See *"Map Legend tab" on page 42*. In the Red, white, blue scheme, the darker blue hues will represent the lower elevation, and the darker red values will represent the higher elevations, white will be a transition color between. In the Brown-Tan scheme, the Dark brown will represent the lower elevations, and the Tan the higher elevations. You can select the number of legend ranges for your field that will show the areas desired. This theme will be used for each field until changed.

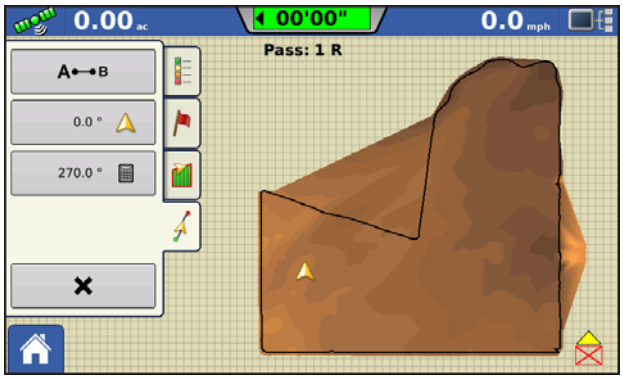
During collection of an elevation survey, points will be logged to the file every 3 meters. An onscreen visual will appear in the form of a single black dot every 30 meters.



If at any point during collection your gps correction status changes out of RTK fixed, logging will be suspended, if you re-acquire the RTK signal, logging will automatically resume.

At any point you can pause ⏸ or stop ■ collection of the elevation survey, and then resume ▶ as needed.

If you forget to stop logging as you leave the field, you will be prompted with the message that data collection is still active, and be given the option to continue logging, or end operation.



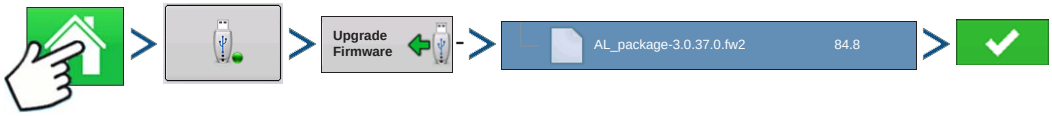
In Odd-shaped fields, the surface rendering of the elevation will connect areas (A) even if you haven't driven through that area.

EXTERNAL DRIVE

EXTERNAL STORAGE OPERATIONS

The External Storage Operations button is where you can copy your field data; upgrade display firmware; as well as import, export and manage files.

UPGRADE FIRMWARE

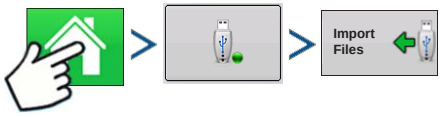


Press: Home button > External Storage button > Upgrade Firmware button > specific .fw2 file on USB drive > Check button

Pressing the Upgrade Firmware button allows you to upgrade the display firmware from the .fw2 file stored on the USB drive. At the File Selection screen, scroll through the list of files on the USB drive until you find the .fw2 firmware file. Highlight the .fw2 file and the box at the upper right-hand side of the File Selection screen shows the version of this file. Press to continue, and the Upgrade screen informs you that the upgrade is beginning. At the Upgrade Ready screen, press .

CAUTION: *Do not disconnect display power when the upgrade is taking place.*

IMPORT FILES



Press: Home button > External Storage button > Import Files

The File Selection screen opens. Use the scroll bar to find the file you wish to import. File formats that you can import:

.AGSETUP

Use to transfer setup information from display to display or from SMS and display

- Replaces MSF, IBY, PAT, IRX, REF
- Allows full synchronization of the following file items:
  - Management Data (Growers, Farms, Fields, Seasons, Operators)
  - Products and Product Mixes
  - Boundaries
  - Guidance Patterns

- Marker Sets and Markers

Note: Do not use the IBK to “clone” a display. Use AGSETUP.

.AGDATA

- Includes all the necessary data to fully archive in SMS
- Includes recorded operation data
- Equipment Used
- Products Used
- Marks Logged
- Boundaries
- Guidance Patterns
- Flexible export options
- Will be able to export by Grower

Export Files

.AGSETUP

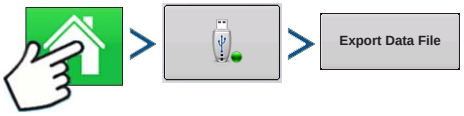
Press: Home button > External Storage button > Export Setup File

Use to transfer setup information from display to display or from SMS and display

- Replaces MSF, IBY, PAT, IRX, REF
- Allows full synchronization of the following items:
- Management Data (Growers, Farms, Fields, Seasons, Operators)
- Products and Product Mixes
- Boundaries
- Guidance Patterns
- Marker Sets and Markers

Note: Do not use the IBK to “clone” a display anymore. Use AGSETUP.

.AGDATA



Press: Home button > External Storage button > Export Data File

- Includes all the necessary data to fully archive in SMS
- Includes recorded operation data

- Equipment Used
- Products Used
- Marks Logged
- Boundaries
- Guidance Patterns
- Flexible export options
- Will be able to export by Grower

MANAGE FILES

Press: Home button > External Storage button > Manage Files

Use the scroll bar to view a list of all files and folders. A bar at the bottom of the window shows how much memory is available on the USB drive.

To delete files, highlight specific file and press

. The Memory Management screen warns that the selected files will be permanently deleted. Press to permanently delete file.

DEVICES

DEVICE INFORMATION

Pressing on the Device Information button, located in the upper right corner of the display, opens the Devices screens. Technical support may request that you look at these screens for help in diagnosing a problem.

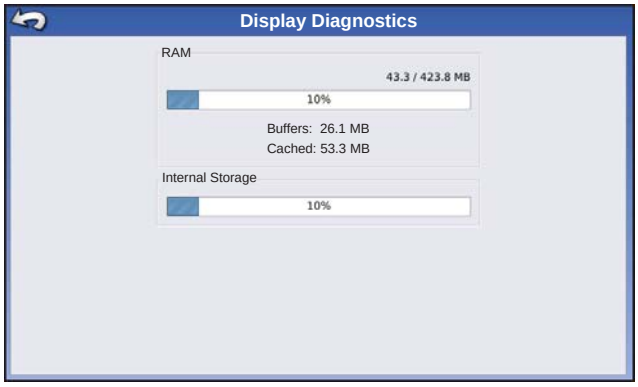
DEVICES

The Devices screen displays the modules that are connected to the CAN A and CAN B bus (CAN B is for ISOBUS). Select a device to display its particular firmware and hardware information.

Device Information includes **Firmware Version**, **Firmware ID**, **Hardware ID**, **Serial Number**, **Revision**, **Run Time** shown in hours:minutes:seconds and Display **Boot Counter**.

Note: *Check the CAN device list to ensure that all hardware modules appear there.*

DISPLAY DIAGNOSTICS



Press Display on the CAN Device list, then press the **Diagnostics** button on the Devices screen to open the Display Diagnostics screen. This screen includes information about the system memory usage and available memory.

VIRTUAL TERMINAL

The display is compatible with the ISO 11783 (ISOBUS) Virtual Terminal Standard. This enables support of many ISOBUS compliant implements on the display. Virtual Terminal functionality enables the compliant implement's user interface to be viewed and controlled on the display.

COMMON TERMINOLOGY

- **ISOBUS Working Set**

  One or more ISOBUS modules that control an implement's functionality

- **Working Set Master (WSM)**

  Main module responsible for coordinating all communication between the VT and the Working Set including loading of the Object Pool to the VT screen

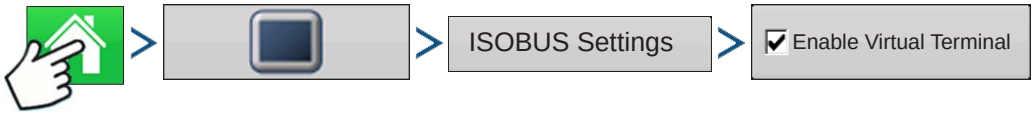
- **Object Pool**

  Defines graphical components that ISOBUS modules present on a compatible display.

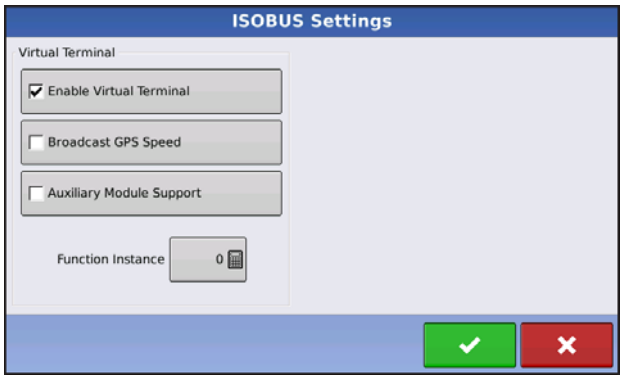
WARNING: Before operating an ISOBUS implement with the display, read the operator's manual provided by the implement's manufacturer and follow all safety information provided in the manual. When this display is used with an ISOBUS implement, the information and functions on the display are provided by the implement ECU and are the responsibility of the implement manufacturer.

***CAUTION: OnTrac2+** communicates on CAN A, independent of Virtual Terminal communication on CAN B. These systems can be used at the same time. Verify which hardware has been installed.*

To enable the Virtual Terminal:



Press: Home button > Display button > ISOBUS Settings > Enable Virtual Terminal checkbox



Once a Virtual Terminal has been enabled

will appear in the task bar. Toggle between the Virtual Terminal run screen and other display functions by pressing the VT button.

- **Broadcast GPS Speed**

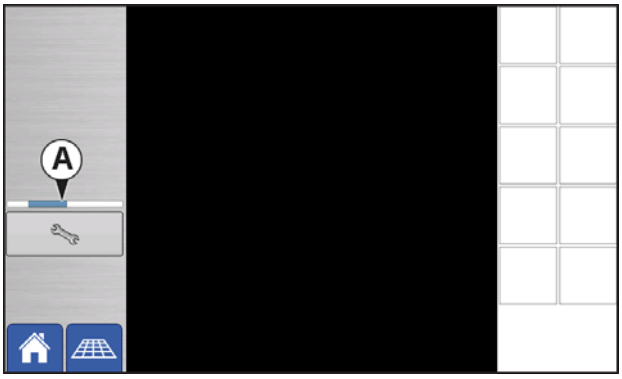
  Checking this box allows the implement to use GPS ground speed that has been gathered by the display.

- **Auxiliary Module Support**

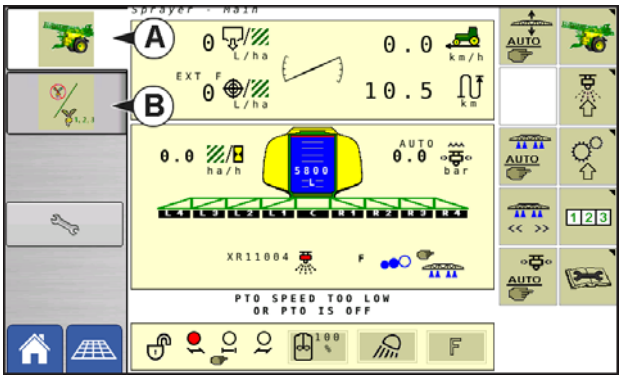
  Assign implement functions to ISO compatible inputs.

• **Virtual Terminal Functional Instance**

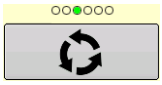
Always set to 0 except when there are multiple VTs on the ISO Bus. Use to change instance. Reboot Display



When an ISOBUS compliant implement is connected to the display for the first time, the implement WSM sends its graphic interface, called the Object Pool, to the display. **Status bar (A)** appears while Object Pools are being loaded. This process might take several minutes depending on the number of Object Pools being loaded. Once loaded, object pools are stored in the display memory.

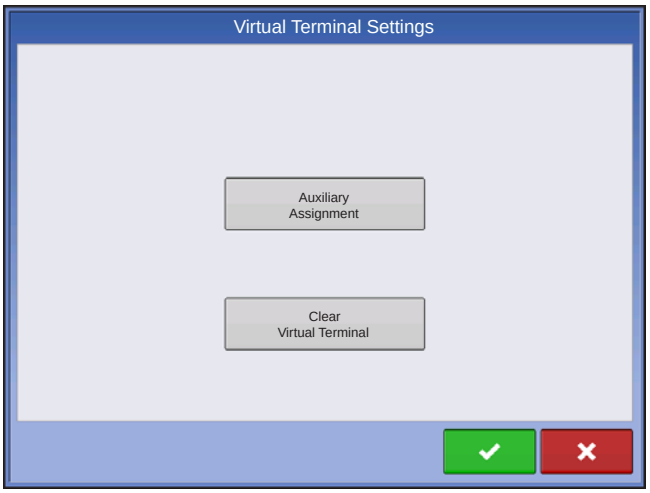


The Working Sets can also be accessed by pressing tabs (A) or (B) individually.



Advance through multiple screens of buttons. This button remains hidden unless more than 10 buttons are present.

Opens the Virtual Terminal Settings screen.



Auxiliary

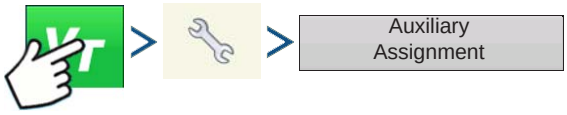
Assign implement functions to ISO compatible inputs.

Clear Virtual Terminal

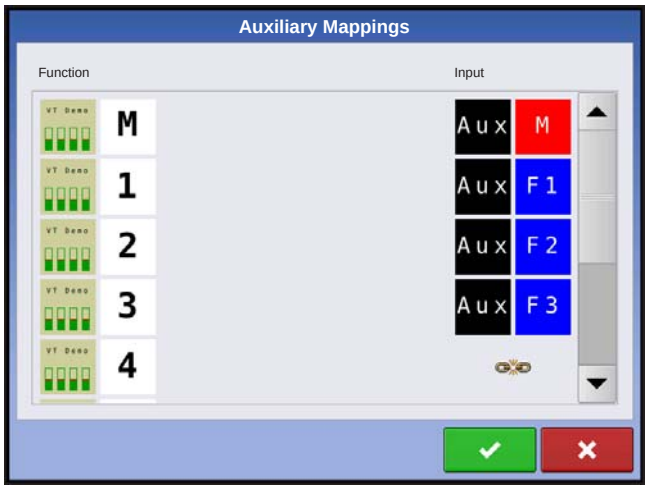
Allows operator to clear the Object Pools sent to the display from the implement WSM. After the object pools have been cleared, the next time the implement is connected the object pools will be transferred from the implements WSM to the display again. When this button is pressed, a warning dialogue box appears with the following message:

“Are you sure you want to clear the saved interface files from all virtual terminal devices Each device will resend its interface the next time it is connected.”

AUXILIARY ASSIGNMENT



Press: Virtual Terminal (VT) button > Setup (wrench) button > Auxiliary Assignments button

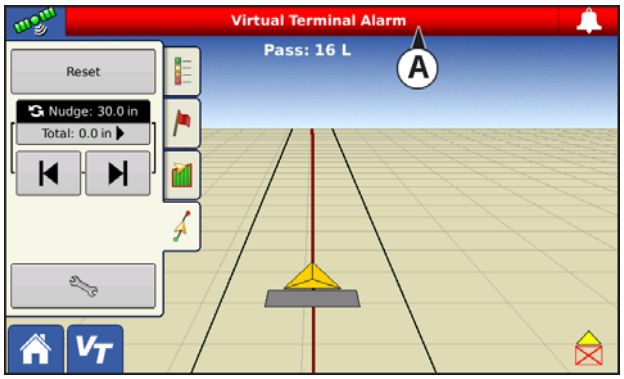


Assign implement functions to ISO compatible inputs.

The number of functions and inputs shown on the Auxiliary Mappings screens will vary depending on the implement and input devices connected to the display.

Note: *Implement functions can not be mapped to* Ag Leader *switches.*

VT ALARMS AND TROUBLE CODES

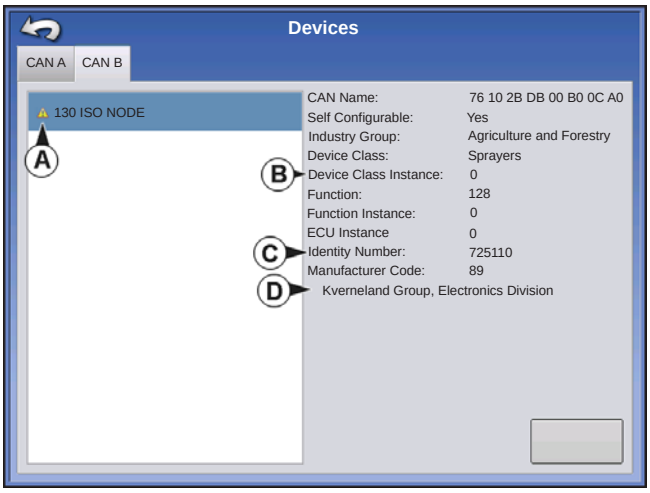


If the display receives an active trouble code, the **Virtual Terminal Alarm (A)** will appear in the Status bar at the top of the screen.

When an alarm is activated on the VT, the display will indicate the alarm by flashing “Virtual Terminal Alarm” in the status bar.

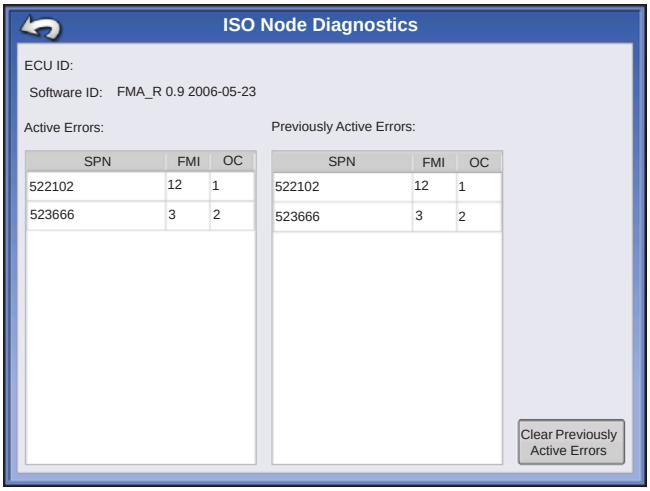
Alarms are acknowledged and cleared by pressing .

This button is only present when a virtual terminal alarm has been activated.



The Devices screen displays the following information:

- **(A) Caution icon indicates module has active trouble codes (DTCs)**
- **(B) Equipment Type**
- **(C) ECU Serial Number**
- **(D) VT Manufacturer, name and code**



Pressing the Diagnostics button on the Devices screen brings up the ISO Node Diagnostics screen which shows the following information.

- **SPN**

  "Suspect Parameter Number" = Error Number

- **FMI**

  "Fault Mode Indicator" = Error State.

- **OC**

  "Occurrence Count"

- **DTC**

  Diagnostic Trouble Code

  This is a combination of the SPN and the FMI (for example 522102.12).

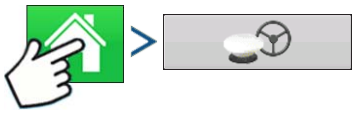
  Cross-reference DTC in equipment manufacturer's operator manual for description of error.

GPS

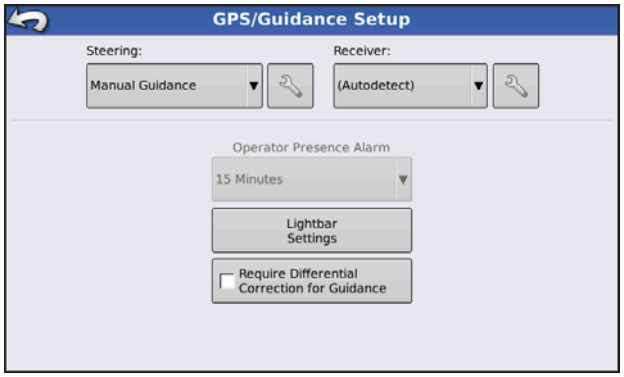
GPS Button

During your field operation, the GPS (satellite) button in the upper left-hand side of the Status Bar should appear as green, which means you are receiving a differential GPS signal. If this icon appears yellow, you are still receiving GPS but are not receiving a differential signal; and if it appears gray then you have lost GPS. In either case, you should check your GPS settings.

Setup



Press: Home button > GPS button

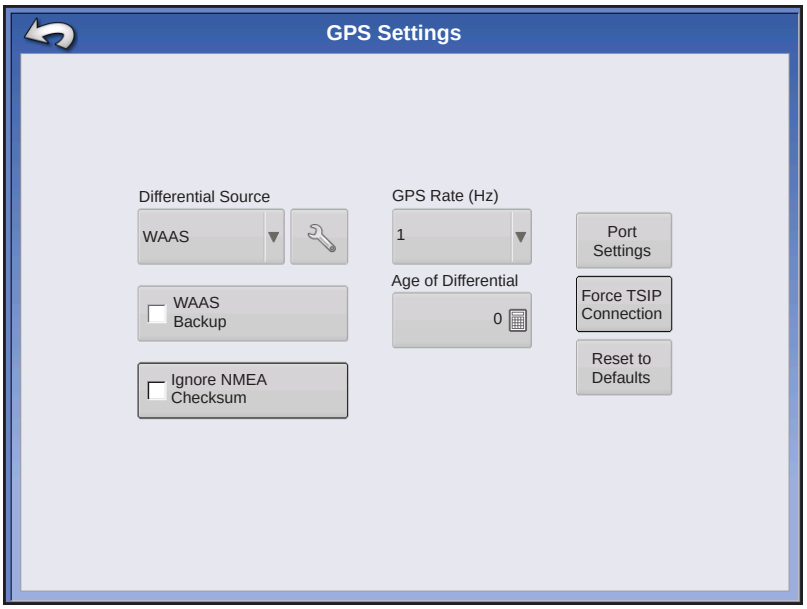


- **Guidance/Steering, Lightbar Settings, and Required Differential Correction for Guidance**

For more information, see the Guidance chapter at *"Guidance" on page 75*.

GPS Settings

Press: Home button > GPS button > Receiver Setup (wrench) button



Note: *If using OmniSTAR, see "OmniSTAR Settings" on page 65.*

• Differential Source

Select choice of WAAS/EGNOS, Satellite (OmniSTAR®) or Beacon (Coast Guard) differential sources.

• Wrench button

Pressing the Wrench button opens different settings screens, depending on whether you are using OmniSTAR® or Beacon.

• Ignore NMEA Checksum

Check this to ignore intermittent GPS message errors.

• GPS Rate (Hz)

The GPS Position Rate drop-down menu represents the cycles per second that the display receives guidance information from viewable satellites. Select one of the available Hz rates from the drop-down menu.

• Age of Differential

Displays the elapsed time since reception of last differential correction signal. The Age of Differential button is only functional when GPS is connected.

• Port Settings

Displays the Serial Port Settings screen, where you can adjust GPS output. For more information, see *"Serial Port Settings" on page 67*.

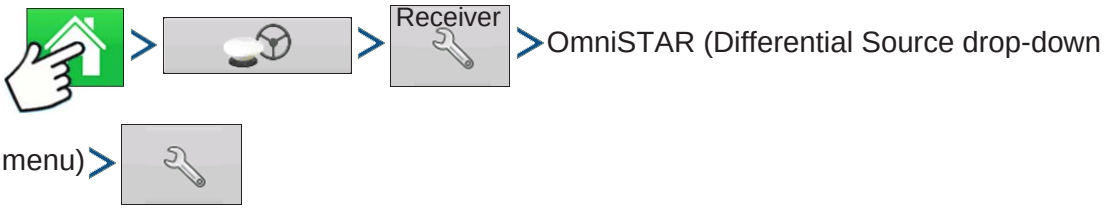
• Force TSIP Connection

Forcibly connects to TSIP GPS receiver. Pressing this button will force the port to TSIP communication.

• Reset to Defaults

Press the Reset to Defaults button to restore receiver settings to the factory default. This will remove all custom settings.

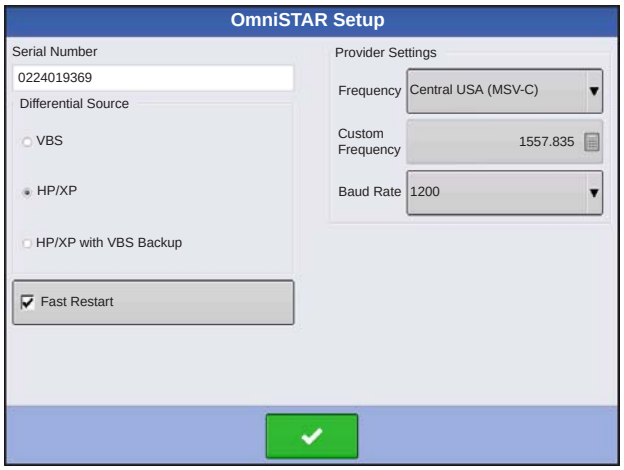
OMNISTAR SETTINGS



> OmniSTAR (Differential Source drop-down menu) >

Press: Home button > GPS button > Receiver Setup (wrench) button > OmniSTAR (Differential Source drop-down menu) > Setup (wrench) button

Note: *If using the GPS 2500 receiver, see "OmniSTAR Settings — GPS 2500" on page 66.*



Note: *The use of OmniSTAR® differential requires purchase of a subscription from OmniSTAR. Settings related to using satellite differential correction vary based upon your geographic location. Setup details are explained on the following pages. More specific information can be obtained by contacting OmniSTAR.*

- **Serial Number/OmniSTAR User ID**

This box shows the serial number of your receiver. It may also display your OmniSTAR User ID.

Note: *You will need to know this number when contacting OmniSTAR in order to set up the receiver.*

- **Differential Source**

The choices include VBS, HP/XP, and HP/XP with VBS backup. These three options are described below.

- VBS - OmniSTAR VBS is a "sub-meter" level of service.
- HP/XP - The OmniSTAR XP service is more accurate than VBS, but slightly less accurate than HP. The OmniSTAR HP (High Performance) service is the most accurate of the three options.
- HP/XP with VBS backup - If this option is chosen, and you lose your HP/XP signal, your receiver will automatically switch to VBS.

- **Frequency**

In the Frequency drop-down list box, select the geographic region where you are located. If you wish to enter a Custom Frequency, select Custom. Then enter the frequency number in the text box below.

Note: *The display does not come with custom frequency numbers. Enter a number only if directed to by OmniSTAR.*

- **Baud Rate**

The baud rate represents the speed at which your receiver obtains information from the satellite.

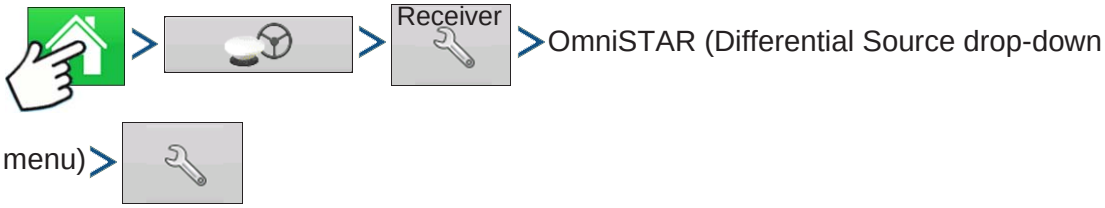
Note: *You should always keep the baud rate set at 1200 unless directed by OmniSTAR or Technical Support.*

- **AutoSeed Fast Restart**

Checking this box before the vehicle is shut down allows the receiver to utilize shutdown time to acquire the appropriate satellites in order to ensure a quick and efficient startup. This reduces the time taken for satellite convergence after startup, and thus increases accuracy in the field.

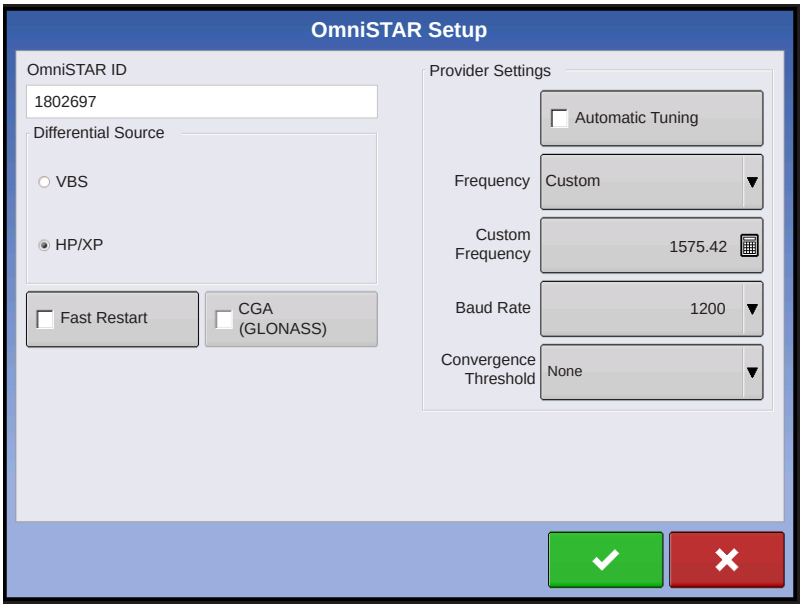
Note: *To get the most benefit from AutoSeed technology, you should shut down the vehicle in a place where the receiver has a clear view of the sky. Do not move the vehicle before powering up again.*

OMNISTAR SETTINGS — GPS 2500



> OmniSTAR (Differential Source drop-down menu) >

Press: Home button > GPS button > Receiver Setup (wrench) button > OmniSTAR (Differential Source drop-down menu) > Setup (wrench) button



Note: *The use of OmniSTAR® differential requires purchase of a subscription from OmniSTAR. Settings related to using satellite differential correction vary based upon your geographic location. Setup details are explained on the following pages. More specific information can be obtained by contacting OmniSTAR.*

- **Serial Number/OmniSTAR User ID**

This box shows the serial number of your receiver. It may also display your OmniSTAR User ID.

Note: *You will need to know this number when contacting OmniSTAR in order to set up the receiver.*

- **Differential Source**
  - VBS - OmniSTAR VBS is a "sub-meter" level of service.
  - HP/XP - The OmniSTAR XP service is more accurate than VBS, but slightly less accurate than HP. The OmniSTAR HP (High Performance) service is the most accurate of the three options.
- **Fast Restart**

Checking this box before the vehicle is shut down allows the receiver to utilize shutdown time to acquire the appropriate satellites in order to ensure a quick and efficient startup. This reduces the time taken for satellite convergence after startup, and thus increases accuracy in the field.

Note: *To get the most benefit from Fast Restart, you should shut down the vehicle in a place where the receiver has a clear view of the sky. Do not move the vehicle before powering up again.*

- **GGA (GLONASS)**

Checking this box allows the additional GLONASS satellites to be displayed in the GGA message.

- **AutoTune Frequency check box**

Receiver will automatically select the strongest frequency.

- **Frequency**

In the Frequency drop-down list box, select the geographic region where you are located. If you wish to enter a Custom Frequency, select Custom. Then enter the frequency number in the text box below.

Note: *The display does not come with custom frequency numbers. Enter a number only if directed to by OmniSTAR.*

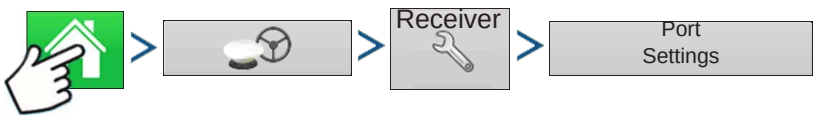
- **Baud Rate**

The baud rate represents the speed at which your receiver obtains information from the satellite.

Note: *You should always keep the baud rate set at 1200 unless directed by OmniSTAR or Technical Support.*

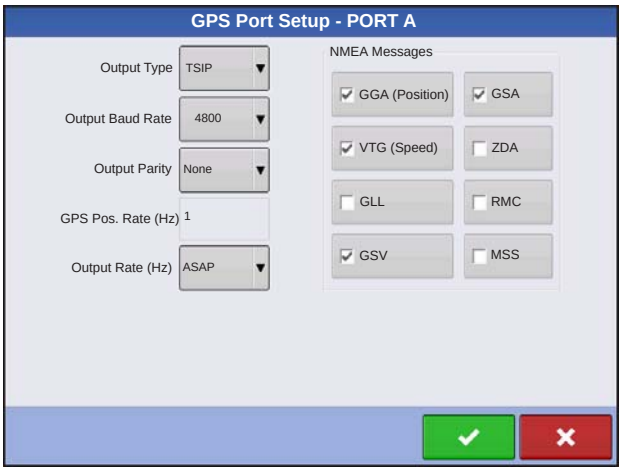
- **Convergence Threshold**

SERIAL PORT SETTINGS



Press: Home button > GPS button > Receiver Setup (wrench) button > Port Settings

The Serial Port Settings screen is the place where you can adjust GPS output. The appearance of the Serial Port Settings screen varies depending upon your model of GPS receiver. Shown to the left is the Serial Port Settings screen as it would appear for an operator of a GPS 1500 or 2500 antenna.



The appearance of this TSIP receiver GPS Port Setup screen is the same for both Ports A and B.

- **Output Type**

Displays what type of protocol the receiver is using. (NMEA or TSIP).

- **Output Baud Rate**

Displays the speed at which the receiver communicates with the display. For optimal performance, the GPS baud rate should be set at 19,200 or higher.

- **Output Parity**

Displays either Odd or None.

- If using TSIP, this setting should be Odd.
- If using NMEA, this setting should be None.

Note: *Parity refers to a technique for checking data integrity after transmission.*

- **GPS Pos. Rate (Hz)**

Represents the cycles per second (shown in Hz) that the display receives position information from viewable satellites. (This is the same number as shown on GPS Rate (Hz) drop-down list menu located on the General Tab).

- **Output Rate (Hz)**

Represents the cyclical rate (in Hz) at which the receiver sends information to the display. This field shows a value of either 1 or ASAP.

- The default rate is 1 Hz.

- ASAP represents a Hz value of more than 1.

• NMEA Messages

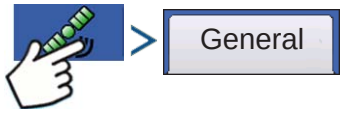
These checkboxes represent various communication protocols or formats that have been set by the National Marine Electronics Association (NMEA), and used in information “strings” or sentences output by the GPS Receiver. At present, the display only requires two NMEA Message formats: GGA and VTG.

- GGA: position in longitude and latitude.
- VTG: ground speed
- GSV, GSA: required to view the Satellite Plot, but are not required for GPS information.
- GLL, ZDA, RMC, MSS: Leave these other NMEA message formats unchecked, unless you are connected to a third-party monitor and have been directed to do so.

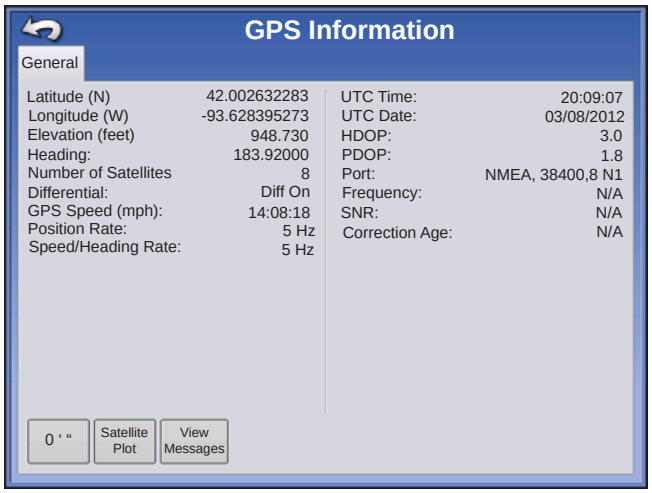
GPS INFORMATION

To access diagnostic information about the GPS signal, press the GPS (satellite) button that appears in the in the upper left-hand side of the Status Bar. GPS Information then appears on General, Receiver, and OmniSTAR tabs. Information on these GPS Information screens is described on the following pages.

GPS INFORMATION - GENERAL TAB



Press: GPS (satellite) button > General tab



• Latitude, Longitude, Elevation

Displays current position (in longitude and latitude) and elevation.

• Heading

Displays degree heading of travel.

• Number of Satellites

• Differential

If a TSIP receiver is being used, the differential status will display the differential source,(i.e. WAAS, Beacon or OmniSTAR). This message field will display either Diff On or No Diff.

- Diff On: Indicates the receiver is receiving a differential GPS signal.
- No Diff: Indicates the receiver is not receiving a differential GPS signal.

Otherwise, if RTK or NTRIP is being used, the differential status will display one of the following status messages:

- RTK Fixed: The ParaDyme roof module is receiving a Valid RTK differential source.
- RTK Float: The ParaDyme roof module is receiving information from the Base Station, but the signal is not strong enough for an RTK fix.

- **GPS Speed**
- **Position Rate**

The frequency that the receiver is sending the display your position in longitude and latitude (GGA). For example, at 5 Hz the display would be receiving a position message 5 times every second.

- **Speed/Heading Rate:**

The frequency that the receiver is sending the display your ground speed and heading (VTG)

Note: *Position Rate and Speed/Heading Rate should both be set at a minimum of 5 Hz for guidance or steering.*

- **Change Longitude/Latitude Format**

Pressing this button changes the Longitude/Latitude format. These can either be shown in Degrees, Minutes and Seconds; or Decimal Degrees.

- **View Messages**

To view the NMEA or TSIP messages coming from the receiver, press the View Messages button.

- **UTC Time**

UTC is an acronym for Coordinated Universal Time, a high-precision atomic time standard that defines local time throughout the world. Different versions of universal time use atomic clocks to correct for irregularities in the Earth's rotation and orbit. UTC is used in navigation, astronomy, aviation, Internet broadcasts, and amateur radio. If you are receiving information from the satellite, then the UTC Time should automatically update.

- **UTC Date**

If you are receiving information from the satellite, then the UTC date should automatically update.

- **HDOP**

Horizontal Dilution of Precision (HDOP) indicates the quality of the horizontal GPS position. Lower HDOP numbers are optimal, higher numbers are undesirable.

- **PDOP**

Position Dilution of Precision (PDOP) is a unitless measure indicating when the satellite geometry can provide the most accurate results. When satellites are spread around the sky, the PDOP value is low and the computed position is more accurate. When satellites are grouped close together, the PDOP is high and the positions are less accurate. Lower PDOP numbers are optimal, higher numbers are undesirable.

- **Port**

The connection between the display and the GPS as established at a message format and baud rate.

- **Frequency**

The Correction Frequency indicates the GPS satellite frequency used by the receiver.

Note: *The Correction Frequency diagnostic does not show for WAAS connections.*

- **SNR**

If your receiver is using Beacon differential corrections, the frequency and signal to noise ratio (SNR) will be displayed. Signal-to- Noise Ratio (SNR) indicates the strength of the differential correction signal in relation to the amount of background noise that can interfere with signal reception.

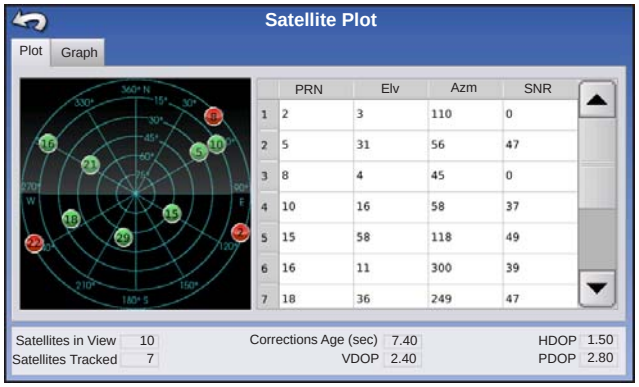
- **Correction Age**

  The length of time since the GPS receiver has obtained its last update.

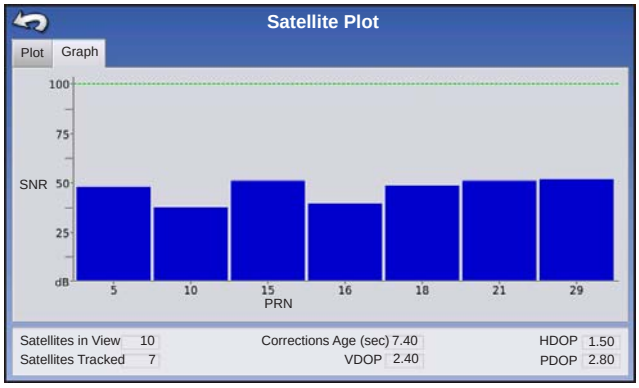
Note: *The age of the DGPS corrections (as delivered to the GPS receiver) will vary from one second to several seconds, depending on the characteristics of the individual satellite signals.*

Satellite Plot

Press: GPS (satellite) button > General tab > Satellite Plot button



The Satellite Plot feature can display either as a plot or a graph. The information on these screens is used as an advanced diagnostic tool for GPS satellite availability. In the event of GPS availability issues, technical support may request you to view these screens.

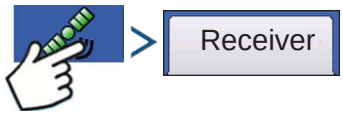


Satellite Plot - Graph

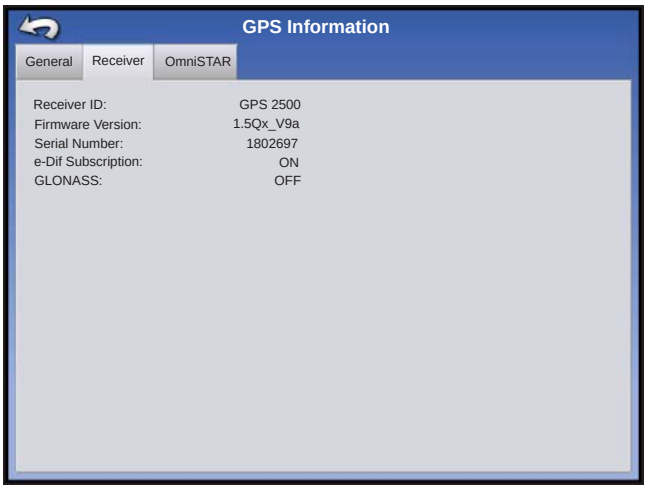
Satellite Plot requires GSV and GSA NMEA messages to be turned on from the GPS receiver.

Note: *In order to use Differential GPS, you must have at least four available satellites. In order to use RTK differential sources, you must have at least five available satellites.*

GPS Information - Receiver Tab



Press: GPS (satellite) button > Receiver tab



- **Receiver ID**
- **Firmware Version**
- **Serial Number**
- **e-Dif Subscription**
- **GLONASS**

GPS INFORMATION - OMNISTAR TAB

Press: GPS (satellite) button > OmniStar tab

- **HP/XP Expiration Date**
- **HP/XP Time Remaining**
- **VBS Expiration Date**
- **VBS Time Remaining**
- **AutoSeed Fast Restart**
- **AutoSeed Status**
- **Estimated Position Error**

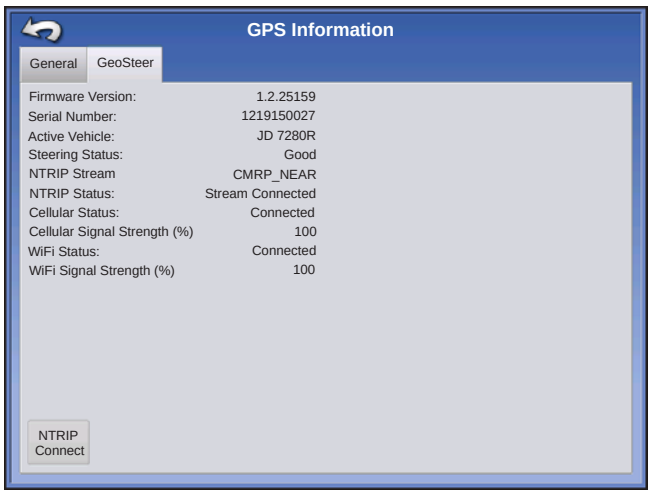
RTK/NTRIP Information

The following information appears on the second GPS Information screen for RTK or NTRIP.

- **Convergence (%)**
  Successful communication between Base Station and ParaDyme Roof Module.
- **Radio Throughput**
  Displays percentage of data received from Base Station.
- **Distance to Base**
  Shows distance to Base Station in miles (kilometers).
- **Base Channel**
  Displays Channel ID of Base Station.
- **NTRIP**
  (NTRIP users only) Shows either Connected or Disconnected.

GPS Information - NTRIP

Press: GPS (satellite) button > GeoSteer tab or ParaDyme



- **NTRIP Connect**

  Connects the display to the NTRIP correction source.

- **NTRIP Stream**

  Network mount point.

- **NTRIP Status**

  Displays NTRIP connection; either Connected or Disconnected.

- **Cellular Status**

  Displays status of ParaDyme cellular modem; either Connected or Disconnected.

- **Cellular Signal Strength (%)**

  Displays a number between 0 and 100%.

- **WiFi Status**

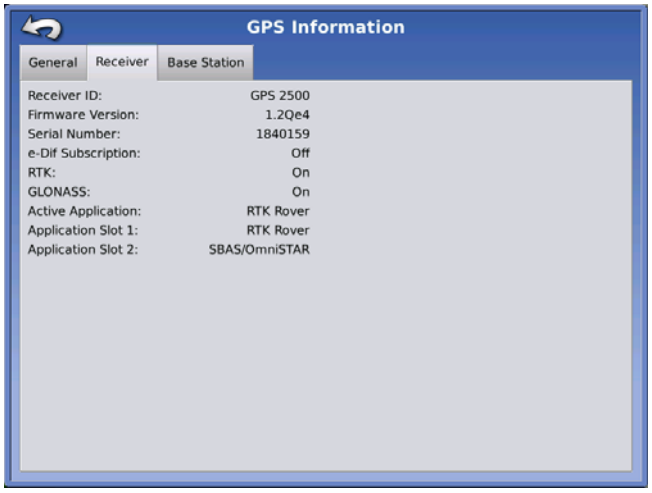
  Displays status of WiFi router; either Connected or Disconnected.

- **WiFi Signal Strength**

  Displays a number between 0 and 100%.

GPS Information for 2500 RTK

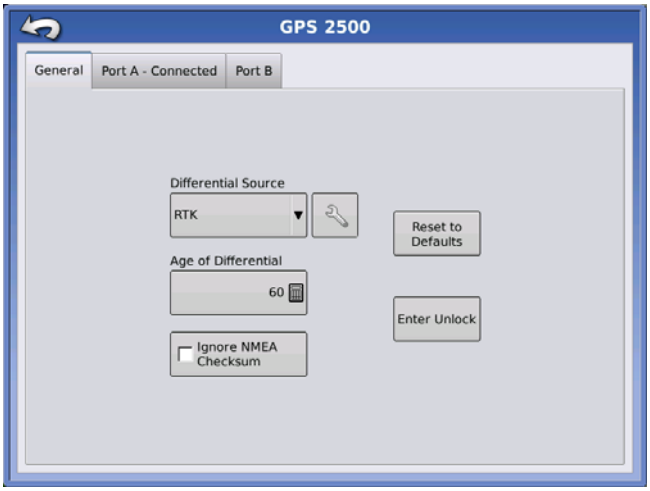
Press: GPS (satellite) button



GPS Information is given for the Receiver and the Base Station

2500 RTK Setup

Press: Home button > GPS button > Receiver Setup (wrench) button



- **Differential Source**

Select RTK for RTK Differential Correction

- **Wrench button**

Pressing the Wrench button opens the screens to set the RTK radio channel. Base Station and Rover must be set to the same channel

- **Ignore NMEA Checksum**

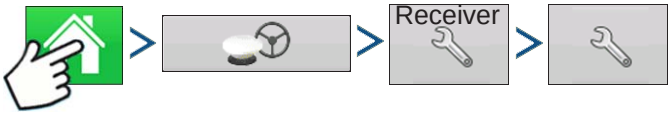
Check this to ignore intermittent GPS message errors.

- **Reset to Defaults**

Press the Reset to Defaults button to restore receiver settings to the factory default. This will remove all custom settings.

- **Enter Unlock**

Press to enter feature code unlocks. Unlock codes can be purchased through AgLeader.



Press: Home button > GPS button > Receiver Setup (wrench) button > Differential Source Setup (wrench) button

- **RTK Radio Channel**

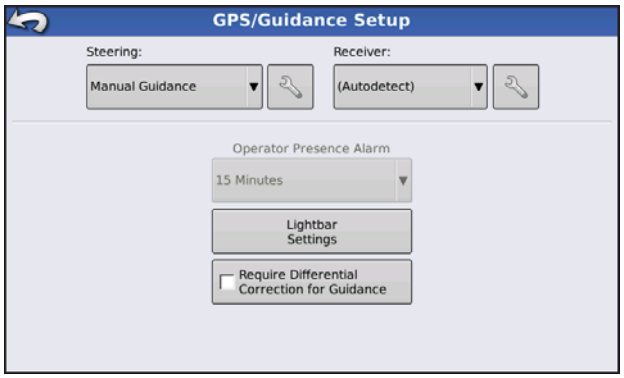
Press button to set the RTK radio channel. Base Station and Rover must be set to the same channel.

GUIDANCE

GUIDANCE/STEERING CONTROL

SETUP

Press: Home button > GPS button



- **Manual Guidance**

  Select this to perform guidance by lightbar while manually steering the vehicle.

- **OnTrac2/OnTrac2+**

  For more information, see the OnTrac2 section.

- **ParaDyme Steering**

  For more information, see the ParaDyme insert.

- **Operator Presence Alarm**

  The Operator Presence Alarm disengages guidance control if the operator does not have any interaction with the display for a specified period of time. Use the drop-down menu to specify the period of time before guidance is automatically disengaged.

- **Lightbar Settings**

  For more information, see *"Lightbar Settings" on page 75*.

- **Required Differential Correction for Guidance**

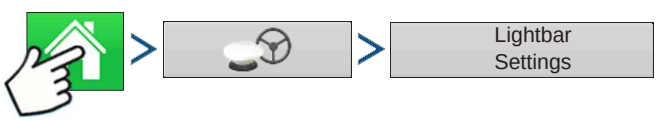
  When un-checked allows guidance to operate without differential correction.

Pressing the Setup (wrench) button on the Guidance Tab opens the guidance system settings for the selected guidance system.

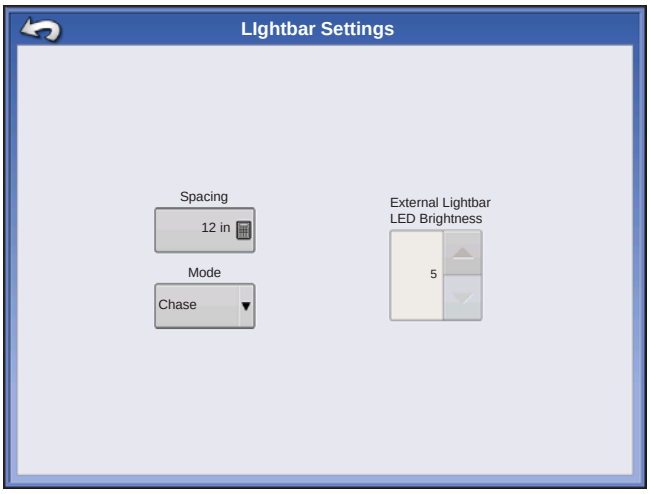
Note: *In order to use guidance with the display, you must have a GPS receiver capable of a GPS output rate of 5 Hz or more.*

LIGHTBAR SETTINGS

SETUP



Press: Home button > GPS button > Lightbar Settings button



- **LED Spacing**

Enter the distance represented by each square of the lightbar (6-72 in.).

- **Mode**

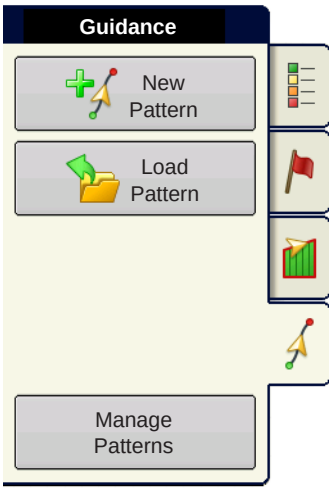
Chase - center the vehicle by followig the indicator lights.

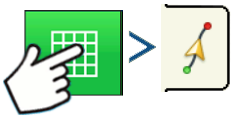
Pull - center the vehicle by turning in the opposite direction of the indicator lights on the lightbar.

- **External Lightbar LED Brightness**

If applicable, press ▲ / ▼ to enter in a number specifying the brightness of the LED lights on the optional L160 external lightbar. The number 1 is the dimmest and 10 is the brightest. Default is 5.

Guidance Tab on Mapping Toolbox





Press: Map button > Guidance tab (in Mapping Toolbox)

The Guidance Tab on the Mapping Toolbox allows you to you can create a new pattern, load an existing pattern, or adjust Guidance Options and Guidance Settings.This tab changes its appearance after you create or load a pattern.

Before you create any patterns, the map screen's Guidance Tab appears as shown.

Note: Guidance pattern will default to the one last used.

Guidance patterns can be set to widths up to 2000 ft (609 m).

New Pattern

Straight

Select Pattern

Press: Map button > Guidance tab (in Mapping Toolbox) > New Pattern button > Straight Pattern Selection

System defaults pattern type to last used. Press the pattern icon to select a different pattern.

- Implement Width (from Implement Setup)
- Guidance Width input box
- Enable Tramlines checkbox

Press ✔. You will automatically return to the Map screen.

Create AB line using 2 points

- A•—•B Press to mark point A. A green ball appears on the map screen where point was placed.
- A•—▸B Button is greyed out until you drive a minimum of 100 feet.
  - Pause - Press ⏸ to pause path during path creation
  - Resume - Press ▶ to resume path during path creation
  - Cancel - Press ✖ to cancel path during path creation
- A•—•B Press to mark point B. The AB line appears on the map screen and point B is marked with a red ball.

Create AB line using Current Location and Heading

- 90.0 ° uses current location and heading, line extends 1 mile before and after the A point (recommend vehicle having forward motion to get a good heading).

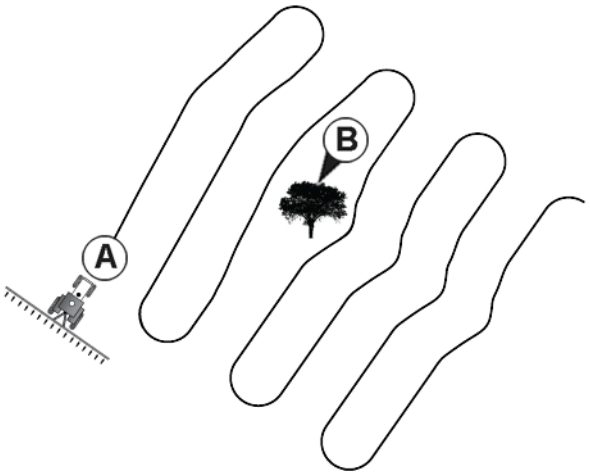
Create AB line using Current Location and Inputting Heading

- 0.0 ° uses current location and input heading, line extends 1 mile before and after the A point

Patterns are automatically saved when the B point is set (A point for A+ pattern). For more information see *"AutoSave" on page 85*.

Note: *On straight AB lines, if you complete a swath that is longer than the previous one, the display automatically extends the guidance path for the following swaths.*

ADAPTIVE CURVE



Use the Adaptive Curve pattern to follow gentle contours in the field, or when you need to avoid **obstacles (B)**. This pattern provides guidance based on the last curve driven.

Select Pattern

Press: Map button > Guidance tab (in Mapping Toolbox) > New Pattern button > Adaptive Curve Pattern Selection

System defaults pattern type to last used. Press the pattern icon to select a different pattern.

- Implement Width (from Implement Setup)
- Guidance Width input box

Press ✔. You will automatically return to the Map screen.

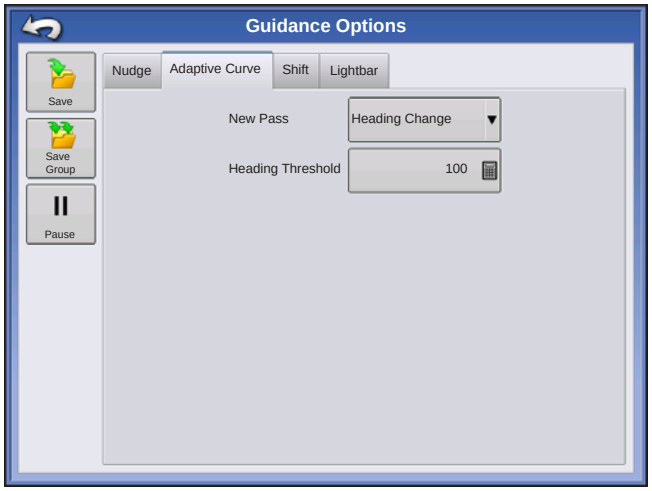
return to the Map screen.

Create AB line using 2 points

- A→B Press to mark point A. A green ball appears on the map screen where point was placed.
- A→B Button is greyed out until you drive a minimum of 100 feet.
  - Pause - Press ⏸ to pause path during path creation
  - Resume - Press ▶ to resume path during path creation
  - Cancel - Press ✖ to cancel path during path creation
- A→B Press to mark point B. The AB line appears on the map screen and point B is marked with a red ball.

Note: *Guidance extends beyond the end of curved swaths. This makes it possible to get LED guidance back onto the swath if the vehicle drives past the end of a swath. The extended swath lines do not appear on screen.*

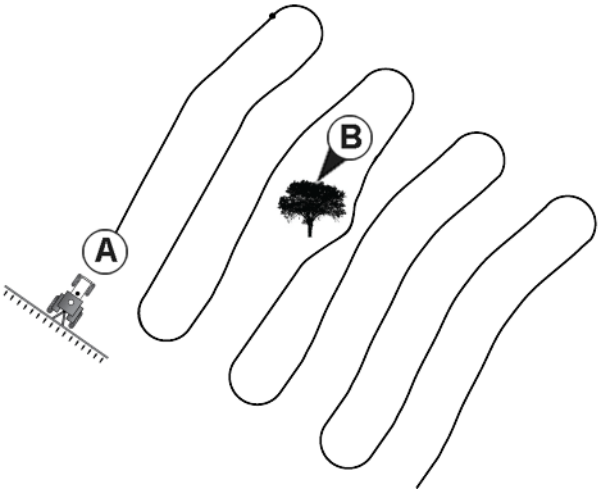
Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Adaptive Curve tab



• You can adjust the degree heading at which the system generates the next pass by doing the following: Go to the Guidance screen and press the **Options** button. The Guidance Options screen appears; press the **Adaptive Curve** button. At the New Pass drop-down menu, select **Heading Change**, then use to enter in the degree number of your Heading Threshold.

Patterns are automatically saved when the vehicle turns for the first time. For more information see *"AutoSave" on page 85*.

IDENTICAL CURVE



Use the Identical Curve pattern to follow gentle contours in the field. This pattern provides guidance based on the original curve driven.

Select Pattern

Press: Map button > Guidance tab (in Mapping Toolbox) > New Pattern button > Identical Curve Pattern Selection

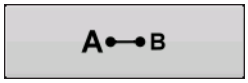
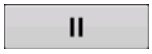
System defaults pattern type to last used. Press the pattern icon to select a different pattern.

- Implement Width (from Implement Setup)
- Guidance Width input box
- Enable Tramlines checkbox

Press . You will automatically return to the Map screen.

return to the Map screen.

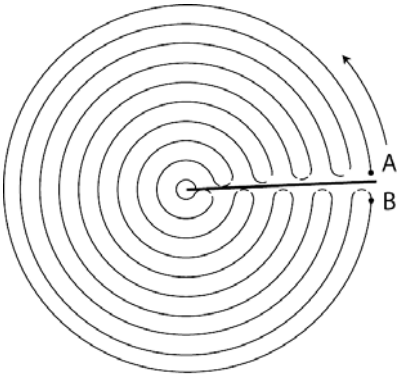
Create AB line using 2 points

-  Press to mark point A. A green ball appears on the map screen where point was placed.
- Button is grayed out until you drive a minimum of 100 feet.
  - Pause - Press  to pause path during path creation
  - Resume - Press to resume path during path creation
  - Cancel - Press to cancel path during path creation
- Press to mark point B. The AB line appears on the map screen and point B is marked with a red ball.

Patterns are automatically saved when the vehicle turns for the first time. For more information see *"AutoSave" on page 85*.

Note: *Guidance extends beyond the end of curved swaths. This makes it possible to get LED guidance back onto the swath if the vehicle drives past the end of a swath. The extended swath lines do not appear on screen.*

PIVOT



Use the Center-pivot pattern for a field that is irrigated using a center-pivot. With this pattern, you can drive concentric circles around the center-pivot. The display will calculate the center point based on where you have driven. Otherwise, you can enter in the latitude and longitude of the center point, if known.

Select Pattern

Press: Map button > Guidance tab (in Mapping Toolbox) > New Pattern button > Pivot Pattern Selection

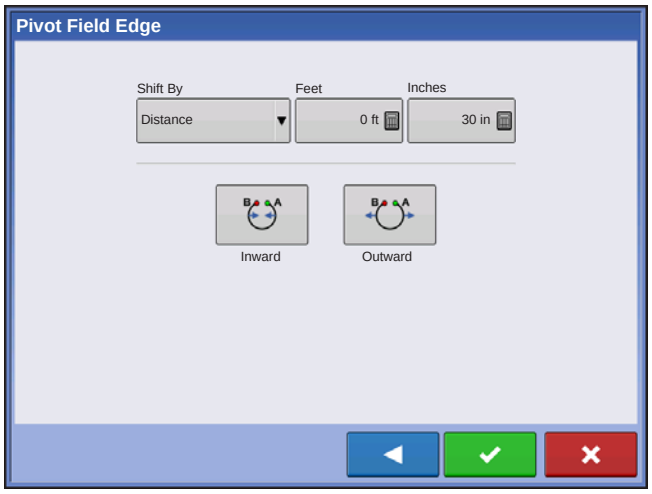
System defaults pattern type to last used. Press the pattern icon to select a different pattern.

- Implement Width (from Implement Setup)
- Guidance Width input box
- Manual Entry checkbox and Latitude and Longitude input boxes

Press ✓. You will automatically return to the Map screen.

Create AB line using driven path

- Position one wheel of the vehicle in a pivot wheel rut, with the rear of the vehicle to the pivot arm.
- A—B Press to mark point A. A green ball appears on the map screen where point was placed.
- Drive around the field. Keep the vehicle wheel in the rut.
- A→B Button is greyed out until you drive a minimum of 160 feet.
  - Pause - Press ⏸ to pause path during path creation
  - Resume - Press ▶ to resume path during path creation
  - Cancel - Press ✕ to cancel path during path creation
- A—B When you are almost back to the pivot arm or the edge of the field, press to mark point B., the AB line appears on the map screen and point B is marked with a red ball.



1. Next, you must set the Field Edge. You may do this when the Pivot Field Edge window appears on your display.

From here, you may choose one of three options:

- **Shift By Distance**

  This sets the field edge as the distance and direction in relation to the AB Line created. In the Pivot Field Edge Distance portion of the window, enter the distance in feet and inches.

- **Shift By Rows**

  This sets the field edge as the number of crop rows multiplied by the number of spacing. In the Pivot Field Edge Distance portion of the window, enter the Number of Rows and Row Spacing.

- **Cancel**

  The vehicle uses the driven pass as the AB Line.

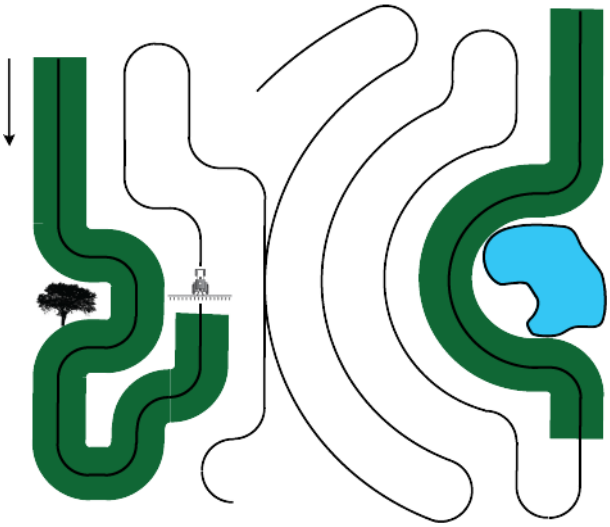
2. If you chose **Shift by Row**s in the previous step, use 🖩 to enter the **Number of Rows** and **Row Spacing**. Choose the direction relative to the AB Line (either Outward or Inward), and press ✓ to continue.

3. Steer the vehicle so that you center the green lights in the lightbar as you drive forward along the path.

Note: *To work from the center of the field outwards, the initial pivot must have:*

- A radius of at least two swath widths.
- An arc length of at least two swath widths.

SmartPath



The SmartPath™ pattern is designed to give guidance from any previously-driven pass. This is used in irregular-shaped and terraced fields where you cannot run all passes parallel to the previous pass. Instead, the SmartPath guidance allows you to move to a different area of the field, and then resume a previous guidance pattern later. Moreover, you can use SmartPath to create straight AB patterns within the SmartPath pattern and cycle between any available pattern within SmartPath to choose the appropriate one.

Select SmartPath

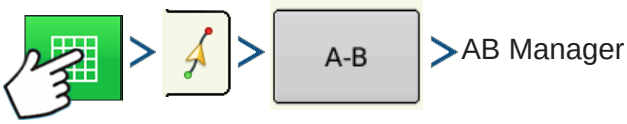
Press: Map button > Guidance tab (in Mapping Toolbox) > New Pattern button > SmartPath Pattern Selection

System defaults pattern type to last used. Press the pattern icon to select a different pattern.

- Implement Width (from Implement Setup)
- Guidance Width input box

Press . You will automatically return to the Map screen.

Inputting Paths into SmartPath



Press: Map button > Guidance tab (in Mapping Toolbox) > A-B button > AB Manager

The AB Manager screen allow user to create, edit, remove, and load paths into SmartPath.

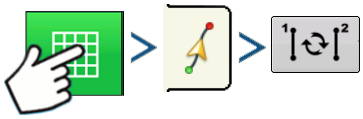
- Press to create an AB line.

- Load Press to load an AB line.
- Press to edit the name of an AB line.
- Press to delete an AB line.

You can create up to 20 different AB lines within SmartPath.

- Press the Back button to close the screen.

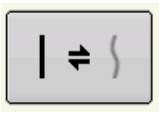
Cycle between Loaded Paths



Press: Map button > Guidance tab (in Mapping Toolbox) > Active Line Cyle button

Press to cycle through the paths loaded in SmartPath.

If you drive your vehicle onto the Projected Path, the system guidance uses this as the Followed Path.



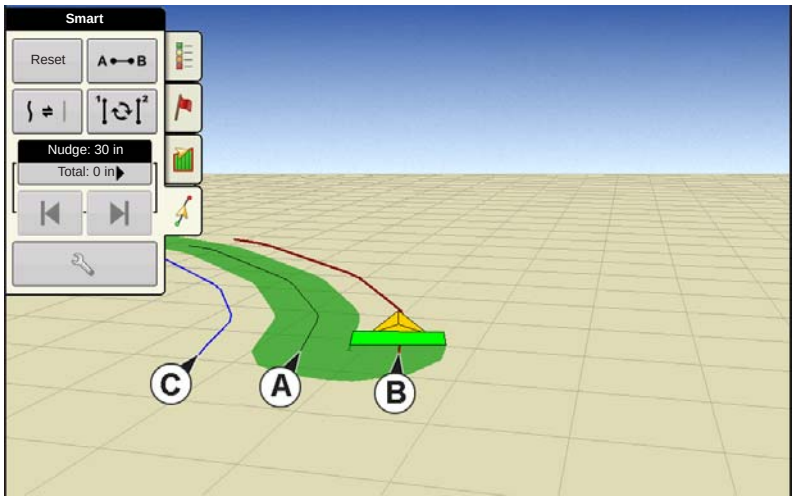
Once the AB line is created, you can switch between the AB line and SmartPath patterns by pressing the AB/SmartPath toggle.

After the Guidance System has switched over to a different path, the name of the currently-followed pattern is shown within a black box on the Map screen.

The Map screen changes its appearance to Perspective View, and SmartPath settings are shown in the mapping toolbox. Drive along the path that you wish to create.

Note: *The display will not create an A point with SmartPath, unless you are mapping a Straight AB line within it. (For more information, see "Once the AB line is created, you can switch between the AB line and SmartPath patterns by pressing the AB/SmartPath toggle." on page 83).*

After you turn around on your first pass, the system guidance will follow a maroon-colored line parallel to your previously-driven pass.



As you continue using the SmartPath, the map screen will display three lines:

• (A) The Base Path

Appears as a black line, is the initial SmartPath that you created on the first pass.

• (B) The Followed Path

Appears as a maroon-colored line, is the path that your vehicle is currently using.

• (C) The Projected Path

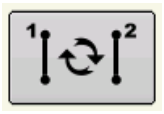
Appears as a blue-colored line on the opposite side of the Base Path, is an alternate path parallel to the Base Path. The system guidance created this path when you created the Base Path. This is the path that your vehicle would have taken if you had turned it in the opposite direction.

• SmartPath Notes:

- The Projected Path and Base Path both remain in display memory, unless you press the Reset button without saving the SmartPath pattern.
- Pressing the Save button saves all the SmartPath passes within the display's memory for future use.

Select a Previous SmartPath Pass

If you have specified SmartPath as your desired pattern, but you are not following an active guidance pattern, the Guidance System automatically begins searching for SmartPath patterns for your use.



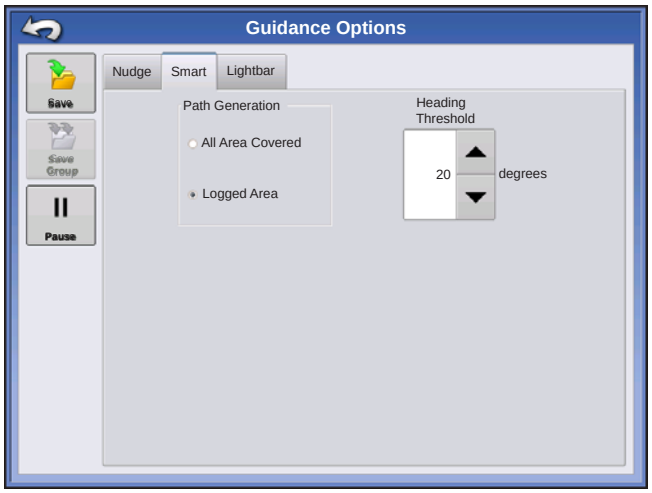
If you wish to use a previously-created SmartPath pattern, you can do so by pressing on the Active Line Cycle button. This button allows you to cycle between available SmartPath patterns.

• Notes:

- When the guidance system looks for other available SmartPath patterns, it first displays the nearest-available pass.
- You can adjust the available area in which the Guidance System searches for previously-created SmartPath passes. To do this, adjust the Heading Threshold settings on the Smart Tab of the Guidance Option screen.

SmartPath Guidance Options

SmartPath only creates a SmartPath pass when you are logging data in the field. However, you have the option of using it to create SmartPath passes continually during all field operations.



To adjust this setting, press the Guidance Options button on the Guidance Tab. The Guidance Options screen appears. Press the Smart Tab.

• The default setting is **Logged Area**. This setting only creates passes while you are logging field data.

• By selecting **All Area Covered**, you can create SmartPath passes even when not logging field data.

• The **Heading Threshold** setting is the available area that the Guidance System uses to search for previously-created SmartPath passes. The default setting is 20 degrees.

If you chose Adaptive Curve as your pattern option at the New Pattern screen, the Adaptive Curve button appears on the Guidance Options screen. This button opens the Adaptive Pattern Options screen. At this screen, you can choose pattern options that tell the system where to log a new pass. These options include:

- **New Pass**

  This sets the conditions for the display to log a new pass. Select either Area Count or Heading Change.

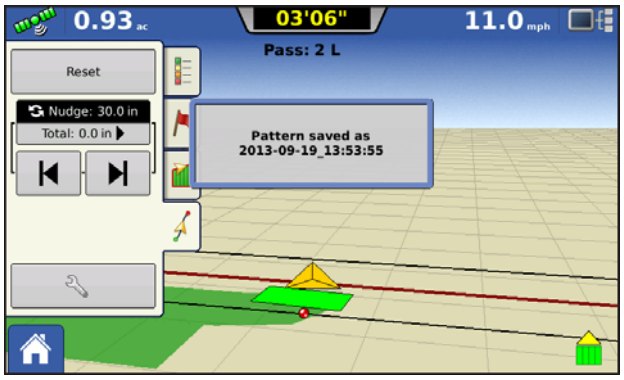
  - Area Count generates the next pass, based on coverage area of the previous pass. The display must be logging coverage data in order to generate the next pass.
  - Heading Change logs the next pass when the vehicle turns past the heading threshold.

- **Heading Threshold**

  Enter in the degree of turning angle that your vehicle will need to make before creating another pass.

Note: *You should always set the Heading Threshold number past 90 degrees. The default number is 110 degrees.*

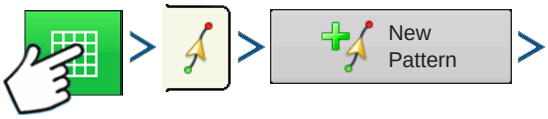
AUTOSAVE



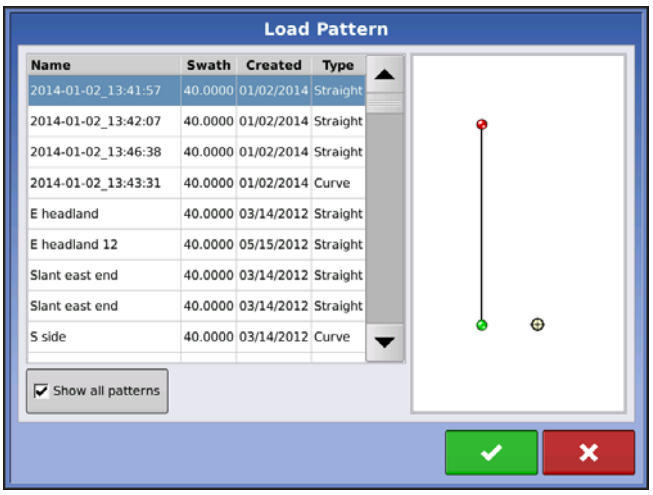
Patterns are automatically saved when the B point is set (A point for A+ pattern). A screen will notify user that the patterns is being saved with a default name using the date and time. Patterns can be renamed or deleted.

Manage Patterns

Spatial Sort

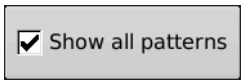


Press: Map button > Guidance tab (in Mapping Toolbox) > New Pattern button



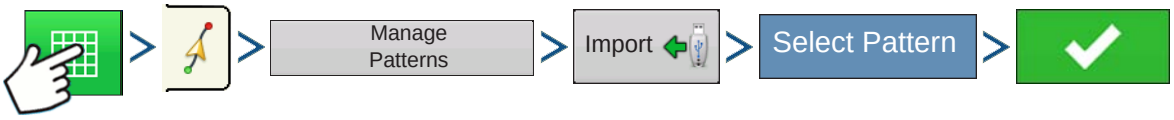
Spatial Sort allows the user to select any guidance pattern in the display, sorted by distance from the GPS location.

Pattern at the top of the list will be the closest to current GPS location.



Check the box to show all patterns.

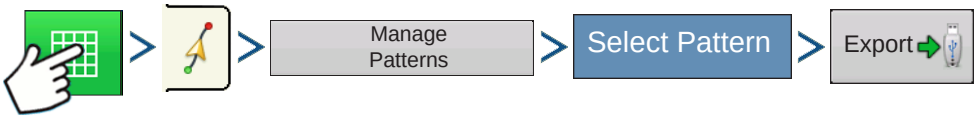
Import Pattern



Press: Map button > Guidance tab (in Mapping Toolbox) > Manage Patterns button > Import button >Select Pattern > Checkmark button

Display informs you when file has been successfully copied.

Export Pattern



Press: Map button > Guidance tab (in Mapping Toolbox) > Manage Patterns button > Select Pattern > Export button

Display informs you when file has been successfully copied.

Edit Pattern

If you wish to rename a pattern, first press the Manage Patterns button on the Guidance Tab of the Mapping Toolbox. Press to enter a name for the pattern. The new pattern name now appears in the pattern list of the Manage Patterns screen.

REMOVE PATTERN/REMOVE ALL PATTERNS

To remove a pattern from the display memory, first press the Manage Patterns button on the Guidance Tab of the Mapping Toolbox. At the Manage Patterns screen, press either:

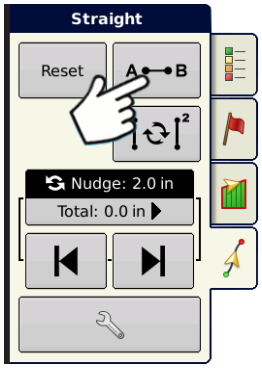
- the **Remove** button if you wish to delete one pattern file; or
- the **Remove All** button if you wish to delete all of them for the current field.

RESET PATTERN

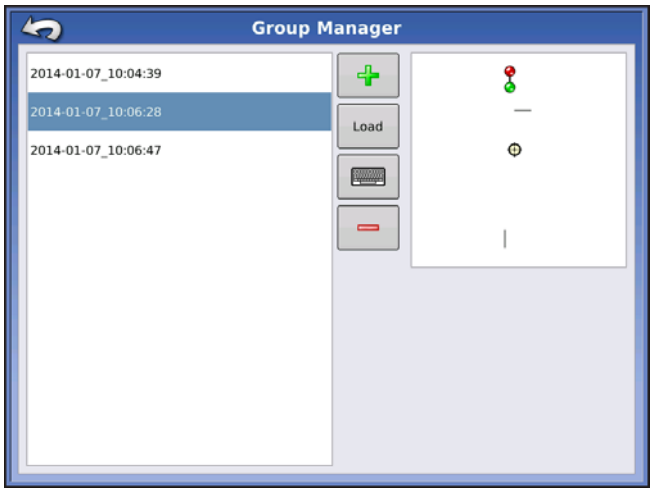
If you have been using an already-saved pattern, and wish to switch over to a different pattern in the same field, you can use the Reset Pattern feature by following the steps below.

1. **Press Reset**
   Press the Reset button on the Guidance screen.
2. **Confirm Reset**
   The Guidance screen appears, asking you to reset the current guidance pattern. Press to continue.
3. **Create new pattern (optional)**
   The pattern is now reset. You may now create a new pattern, if desired.

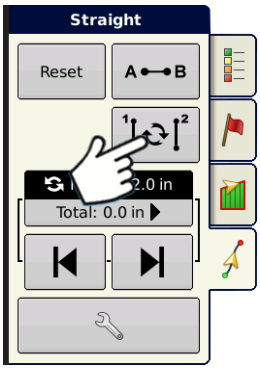
PATTERN GROUPS



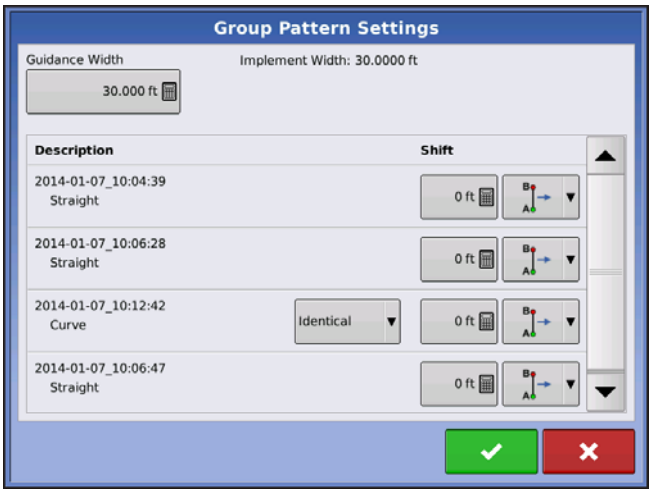
Pattern Groups allow the user to group up to 20 patterns per field, using the Group Manager.



The Group Manager allows the user to add a new pattern or load an existing pattern to a Group. Once a Group is created, it can be saved and reloaded.



The Pattern Cycle Button allows the user to easily cycle between patterns with a single button press. Patterns will cycle in the order they were created or added, starting back at the beginning of the list, once the last patterns is reached.

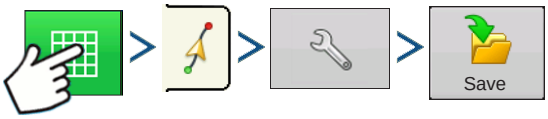


When loading a Pattern Group, the Group Pattern Setting dialog appears and allows the user to select the Guidance Width and any Shift that needs to be applied to each Pattern within the Pattern Group. User will also have the option to load Curve Patterns as Adaptive or Identical.

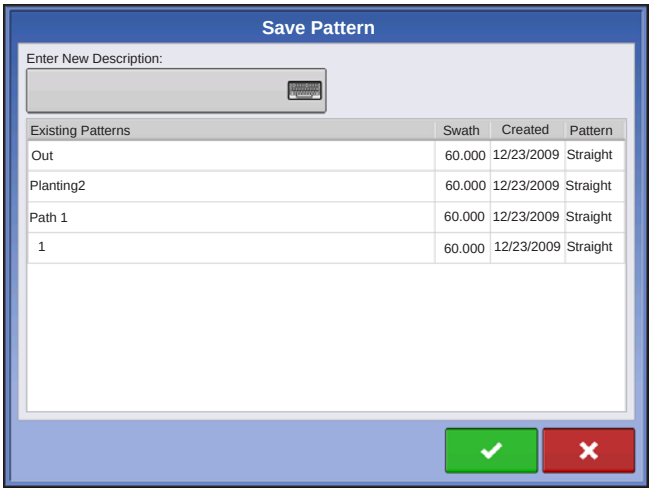
Straight AB, Identical Curve, Adaptive Curve and Pivot Patterns can be grouped. SmartPath cannot be grouped.

Guidance Options

Save



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Save button

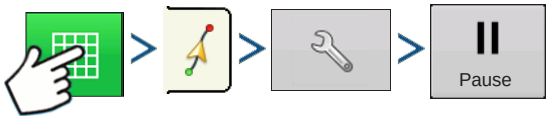


This allows you can save a pattern (.AGSETUP file) to the display's internal memory to the current field.

Press and enter a unique pattern name.

When finished, press .

PAUSE



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Pause button

The Pause button allows your display to stop logging points along an AB Line. Once this button is pressed, a Resume button will take its place until you press this button and Pause reappears.

Note: *If you are using the display to follow a set AB Line and wish to temporarily deviate from this line, you can use the* ***Pause*** *button to pause the display's guidance logging activity. This feature could be used, for example, by a vehicle operator who must refill a sprayer. When paused, the display will continue to give the distance back to the original pause point position.*

• Press Pause button.

Press the Pause button on the Guidance screen. When you do so, the place where you paused appears on the Map screen as a yellow ball.

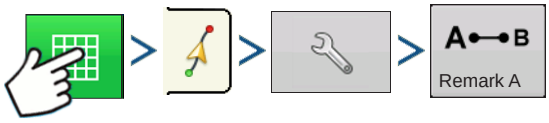
Note: *You can pause a pattern even if you have not set the "B" point yet. If you do so, the message in the lightbar will read "Need B." If you pause the pattern after you have set your AB Line, then the lightbar will indicate the distance your vehicle must travel to return to the pause point.*

• Press Resume button.

To resume your pattern, press the Resume button to resume logging on your AB Line.

Note: *If you press the Resume button before you have returned to the original AB Line, your display will select the closest AB Line to your vehicle.*

REMARK A

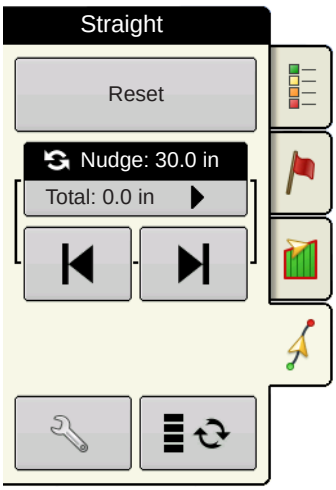


Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Remark A button

If you chose Straight patten, the Remark A button appears on the Guidance Options screen. The Remark A button "re-marks" the A point by moving it to the current position while maintaining the same heading. A brief message appears in the on-screen lightbar, stating "Point A Remarked."

NUDGE

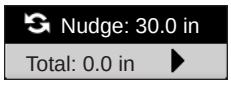
Note: *Only Straight patterns offer two Nudge settings. All other patterns have a single nudge setting.*



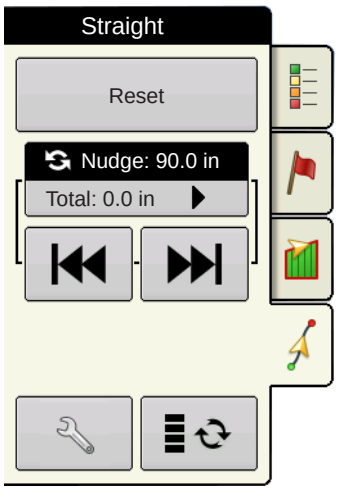
Nudge allows you to adjust the swaths by a specified distance.

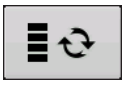
Small Nudge (single arrow) shown on left.

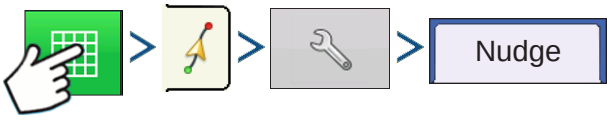
Large Nudge setting (double arrow) shown on right (Straight Patterns Only).

Use Nudge toggle button 

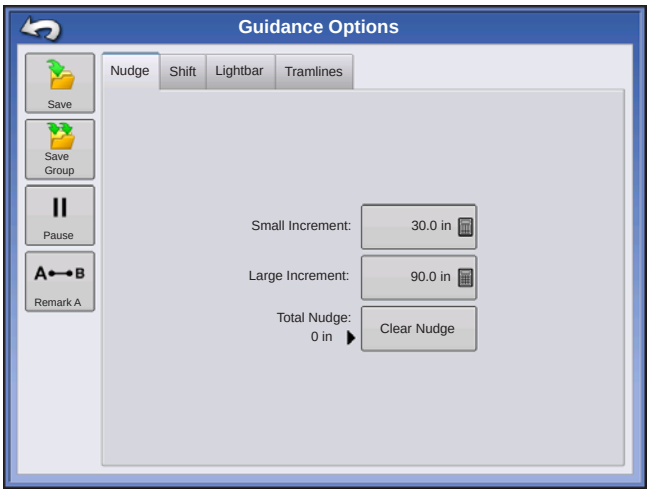
to switch between Small and Large Nudge setting.



Use Mapping Toolbox toggle button  to switch the menu between Tramline and Nudge on the Mapping Toolbox, if Tramlines are enabled.



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Nudge tab



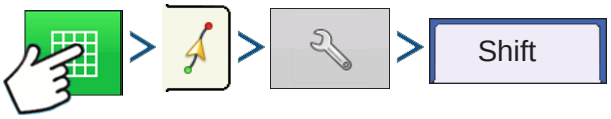
Press the Setup (wrench) button then the Nudge tab to make adjustments to Nudge settings.

• Press to enter a distance for increment that the swaths will move with each successive press of the left or right arrows buttons on the Guidance Tab.

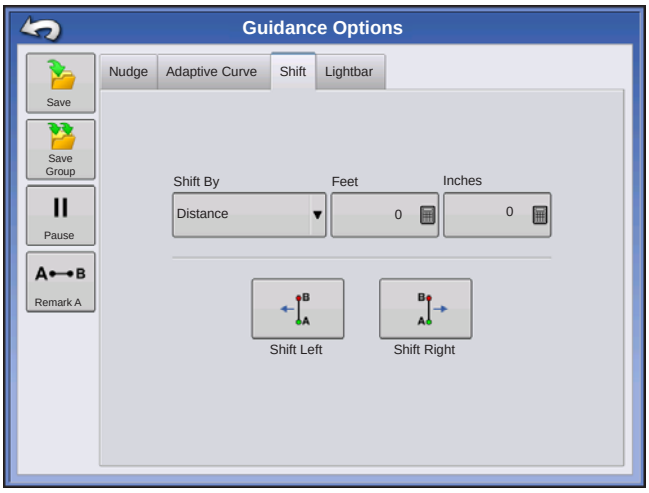
• To clear out the adjustment and go to the original position, press **Clear Nudge**.

Screen shows Small and Large increment settings for Straight path. Other Patterns will only show the small increment setting.

SHIFT



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Shift tab



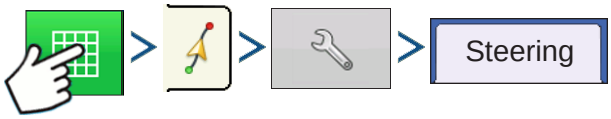
Shift moves all of the swaths by a specified distance to the left or right, (including the AB line). The swaths can be shifted by a distance or number of rows.

• **Shift by Distance -** enter the distance that you wish to shift the pattern. Use the Shift Left and Shift Right buttons to enter the direction and to accept change

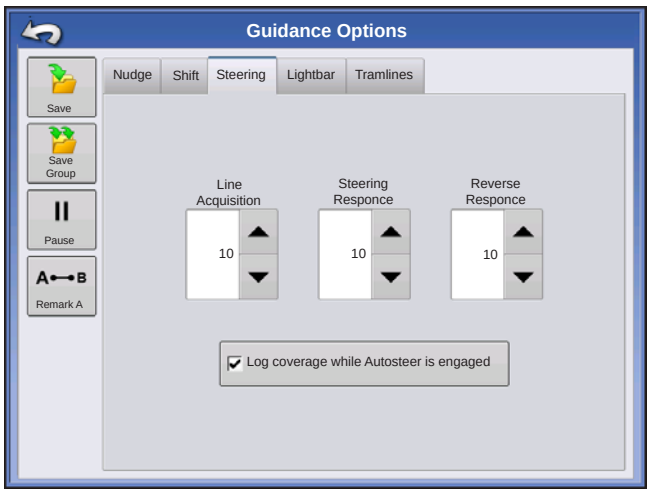
• **Shift by Rows** - enter the number of rows you wish to shift the pattern. Use the Shift Left and Shift Right buttons to enter the direction and to accept change

Note: *The Shift setting is not available with the SmartPath patterns.*

STEERING



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Steering tab



Line Acquisition — determines how aggressively the system steers onto the desired steering path. The ideal setting allows the system to take the shortest route without excessively sharp or sudden movements of the vehicle.

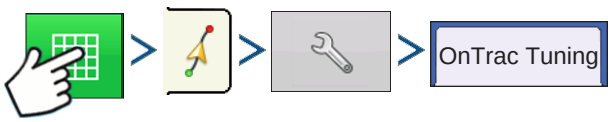
Steering Response — controls the oscillations of the vehicle when it is on the desired path.

Reverse Response — (ParaDyme Only) controls the oscillations of the vehicle when it is on the desired path in reverse.

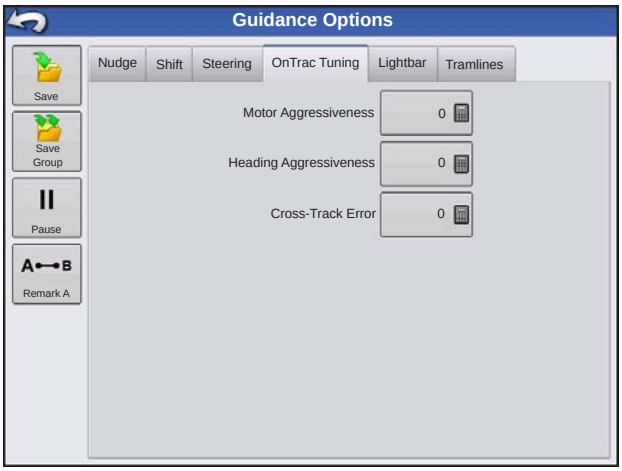
Log coverage while AutoSteer is engaged checkbox

Coverage while engaged is available when an AutoSteering system (OnTrac2+, GeoSteer, ParaDyme) is connected. User can still manually control coverage logging with the on-screen coverage button. AutoSwath is unaffected by this selection.

ONTRAC TUNING



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > OnTrac Tuning tab

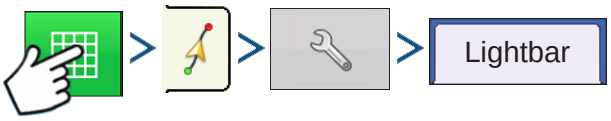


Motor Aggressiveness — determines how aggressively the motor engages.

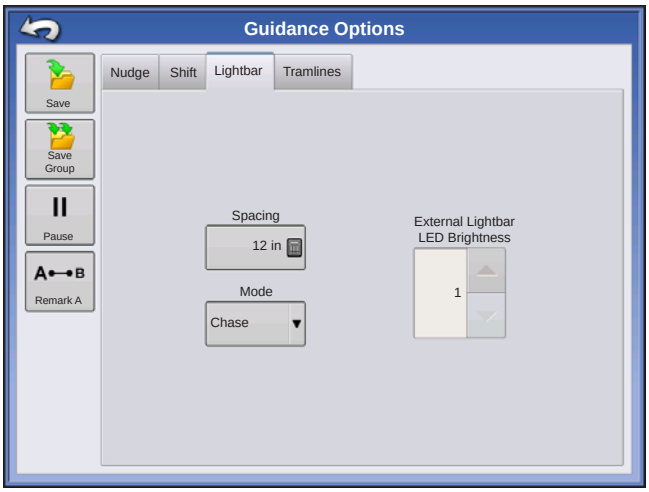
Heading Aggressiveness — determines how aggressively the system reacts to achieve the correct heading.

Cross-Track Error — adjusts how aggressively the vehicle reacts to changes in cross-track error.

LIGHTBAR



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Lightbar tab



- **LED Spacing**

Enter the distance represented by each square of the lightbar (6-72 in.).

- **Mode**

Chase - center the vehicle by following the indicator lights.

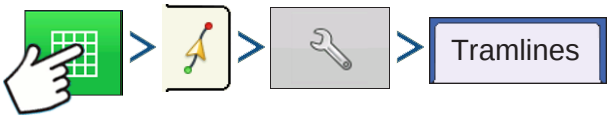
Pull - center the vehicle by turning in the opposite direction of the indicator lights on the lightbar.

- **External Lightbar LED Brightness**

If applicable, press ▲ / ▼ to enter in a number specifying the brightness of the LED lights on the optional L160 external lightbar. The number 1 is the dimmest and 10 is the brightest. Default is 5.

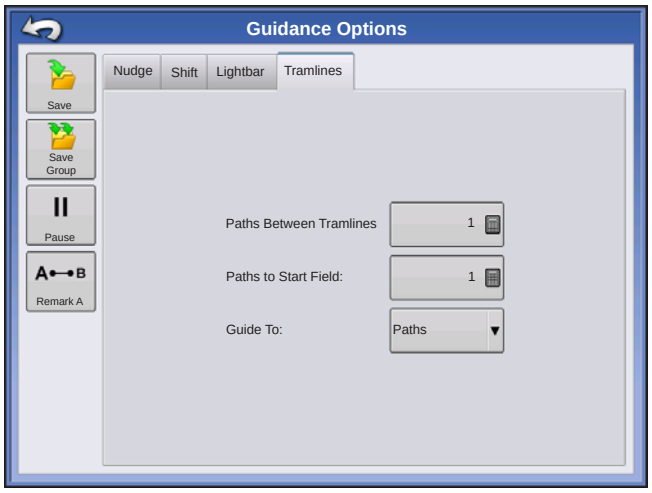
TRAMLINES

(if enabled on Straight and Identical Curve Pattern types)



Press: Map button > Guidance tab (in Mapping Toolbox) > Setup (wrench) button > Tramlines tab

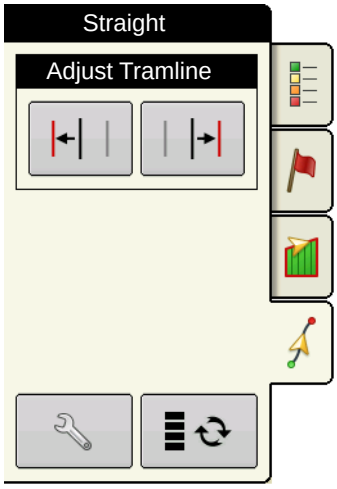
Tramlines only available with Straight AB and Identical Curve Pattern Types

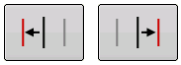


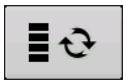
• **Paths Between Tramlines** - use to enter the number of passes between tramlines.

• **Paths to Start Field** - use to enter the number of passes at the begining of the field before the first tramline.

• **Guide To:** - use drop-down menu to choose between Paths and Tramlines.



 Adjust Tramline - move the placement of the tramline by one pass left or right.

 Use the toggle button to switch menu between Tramline and Nudge on the Mapping Toolbox.

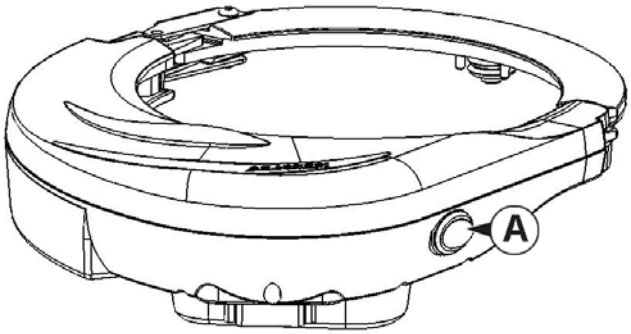
An audible warning is sounded to alert the operator a Tramline is reached when the vehicle is ½ a swath width away.

Tramlines are also numbered under the Pass Number. This number will flash multiple times when the Tramline is reached for a visual warning.

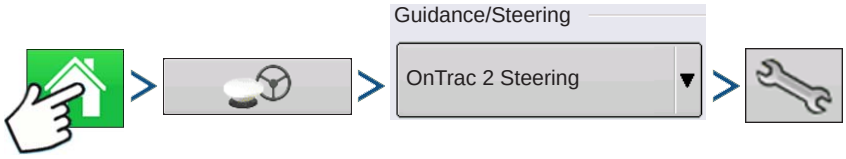
ONTRAC2+

To ensure proper AutoSteer Operation make sure your GPS source is setup properly.

Complete the following steps to access AutoSteer setup screen:

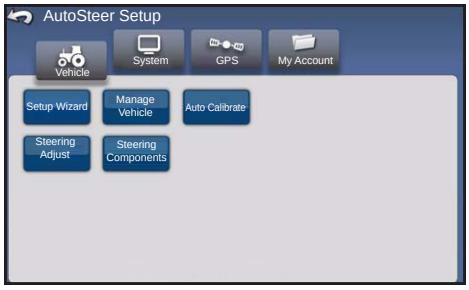


1. Start the Display.
2. Turn on the Mechanical Drive Unit (MDU) with On/Off switch (A).



3. Press: Home button > GPS Guidance button > OnTrac2 Steering drop-down > Setup (wrench) button

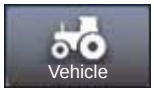
AUTOSTEER SETUP SCREEN



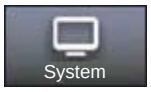
All instructions for the calibration and setup of the OnTrac2+ start from the AutoSteer Setup screen.

<<<Instructions start from this screen

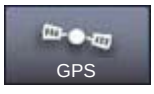
The AutoSteer Setup screen gives you access to the following functions:



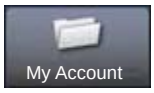
configure a vehicle, set up a new vehicle, manage existing vehicles, perform the auto calibration of a vehicle, perform the steering adjustments, and manage steering components.



configure and monitor system parameters.



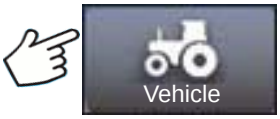
status of your GPS corrections. For more information, refer to the Display or GPS operators manual.



configure and monitor account parameters.

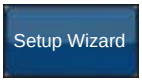
To return to the previous screen, press the Back icon. Press the Back icon from the AutoSteer Setup screen to return to your Display menus.

VEHICLE



Press: Vehicle button

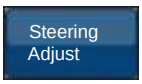
Select the desired vehicle configuration procedure button:



create and calibrate a new vehicle

manage or change selected vehicle

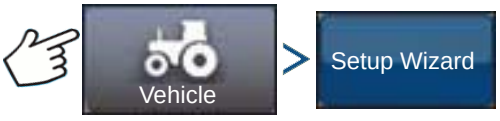
calibrate to achieve optimal AutoSteering.



adjust steering performance

adjust parameters of steering components, such as the manual steering override kickout limit, and view diagnostic information for the system components.

SETUP WIZARD



Press: Vehicle button > Setup Wizard button

The Setup Wizard is used to create, calibrate, and tune your vehicles with the AutoSteer system. It ensures that all required steps are performed. To achieve the best possible steering accuracy, you must setup, calibrate, and tune the system for your specific vehicle.

1. Select vehicle type. Press .
2. Select vehicle make. If your vehicle make is not listed choose Generic. Press .
3. Select vehicle model. Press .
4. Select vehicle controller type. Press .
5. Enter a vehicle name. Press .
6. Enter a Wheel Base value. Press .
7. Enter Antenna Fore/Aft offset and press either Fore or Aft button.
   - Fore indicates the antenna is located in front of the vehicle's control point.
   - Aft indicates the antenna is located behind the vehicle's control point.

The Control Point of a vehicle is defined as:

- Standard Wheeled Vehicle (MFWD, Floater, Sprayer) - Rear Axle

- Track Vehicle - Center of tracks
- Articulated Tractor - Pivot point of vehicle
- Combine/Swather - Front Axle

Press ▶.

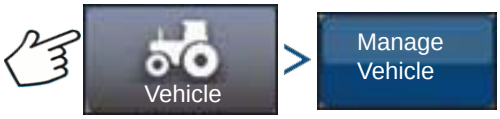
8. Enter Antenna Lateral Offset. Select Left or Right. Press ▶.

Note: The Antenna Lateral Offset value is tested and adjusted (if necessary) after vehicle creation and calibration is complete. Use left or right buttons to indicate if antenna is left or right of the vehicle's center. If the antenna is perfectly centered, it does not matter which button is pressed as long as the measurement is zero.

9. Enter Antenna Height, and then press the checkmark button.

The Wizard now takes you to the Manual Steering Override kickout limit setting procedure. When the Manual Steering Override calibration is complete, the Setup Wizard starts the Auto Calibrate procedure.

MANAGE VEHICLE

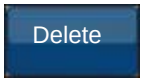


Press: Vehicle button > Manage Vehicle button

The Manage Vehicle screen enables you to:

select the active vehicle

change vehicle parameters



delete vehicle

import and export vehicle profiles

SELECT

Press: Vehicle button > Manage Vehicle button > Select Vehicle > Select button

To make a vehicle profile the Active Vehicle, select vehicle from list and press the Select button. The confirmation box will appear. Press the checkmark button and then Back icon to return to the AutoSteer Setup menu.

EDIT

Press: Vehicle button > Manage Vehicle button > Select Vehicle > Edit button

Select the vehicle from the list and press the Edit button. The wizard will ask for the following items:

- **Wheel Base**
- **Antenna Fore/Aft Offset**
  - Fore indicates the antenna is located in front of the vehicle's control point.
  - Aft indicates the antenna is located behind the vehicle's control point.

  The Control Point of a vehicle is defined as:
  - Standard Wheeled Vehicle (MFWD, Floater, Sprayer) - Rear Axle
  - Track Vehicle - Center of tracks
  - Articulated Tractor - Pivot point of vehicle
  - Combine/Swather - Front Axle
- **Antenna Lateral Offset**
  - Use left or right buttons to indicate if antenna is left or right of the vehicle's center. If the antenna is perfectly centered, it does not matter which button is pressed as long as the measurement is zero.
- **Antenna Height**

If you are satisfied with the changes, press the checkmark button. If you are not satisfied with the changes, press the X button and return to the Edit Vehicle Wizard.

DELETE

Press: Vehicle button > Manage Vehicle button > Select Vehicle > Delete button

The Delete button enables you to delete a vehicle. You can not delete the active vehicle. Select the vehicle from the list, and press the Delete button. Press the checkmark in the Delete Vehicle dialog box. Press checkmark in the confirmation box and you will return to the Manage Vehicles screen.

EXPORT/IMPORT

Press: Vehicle button > Manage Vehicle button > Select Vehicle > Export button

The Export/Import button enables you to move vehicle profiles from one AutoSteer system to another.

Note: All AutoSteer systems must be running the same version of firmware to move vehicle profiles from one system to another. For best results always upgrade all AutoSteer systems to the latest firmware version prior to importing and exporting vehicles.

Export profile to a USB drive

1. Insert a USB drive into the display.
2. Select the vehicle you want to export, and press Export/Import button.
3. Press the Export to Display USB button.
4. Press the Export button.
   - A progress bar appears while the vehicle profile is being exported.
5. When complete, press the checkmark button.

Import profile to a USB drive

1. Insert a USB drive into the display.
2. Press the Export/Import button.
3. Press the Import from Display USB button.
4. Press the Choose File button.
5. Select the vehicle profile you want to import, and press the checkmark button.
6. Press the Import button.
7. When complete, press the checkmark button.
8. The system returns to the Export Vehicle to Display screen. Press the Back icon to return to the previous menu.

AUTO CALIBRATE

Press: Vehicle button > AutoCalibrate button

The Auto Calibrate procedure takes the vehicle through a series of calibration steps to achieve optimal AutoSteering. You can pause the calibration at any point during the process.

Note: The Auto Calibrate procedure takes a significant amount of space for your vehicle to operate within. Depending upon your vehicle size you may need a 100 x 100 yard (91 x 91 meter) area to complete the Auto Calibrate procedure.

- The vehicle will execute a series of maneuvers during the calibration process including turning left and right.

Each step of the Calibration Wizard provides specific instructions for area, speed, and RPM. The calibration steps and time vary according to vehicle type and equipment installed. Follow the onscreen instructions to perform the auto calibration procedure. The main steps of the calibration procedure are:

- **OnTrac2 ECU Orientation:** The ECU can only be physically mounted in only four directions for OnTrac2. It must be flat with the cable connectors facing the front, back, left, or right. This step tells the AutoSteer system which way the ECU is physically facing in the cab so the internal sensors can orient themselves.

- **OnTrac2 ECU Tilt Zero Measurements 1 and 2:** The ECU has a tilt sensor in it to help take into account side hills and bumps while the vehicle is AutoSteering. While the vehicle is sitting still on a flat location, the sensor averages its readings to get an idea of what “level” is. The driver then drives the tractor and turns it so it is facing the opposite direction at the same location and lets it average itself again. These two steps allow the system to correct any tilt differences.
- **OnTrac2 Minimum Output:** This step determines the minimum power needed for the MDU to turn the steering wheel. This value is critical to ensure proper AutoSteering performance.

Note: All steps of the Auto Calibrate procedure must be completed and the changes saved before any attempt is made to AutoSteer the vehicle.

- You can press Pause and Resume (or manually turn the steering wheel) at any time during the Auto Calibrate procedure if needed.
- The correct vehicle must be selected in the Manage Vehicle section prior to calibrating the vehicle. Verify that the correct vehicle has been selected.
- Your vehicle should be moving at normal operating speed before you begin the Calibration Verification process.
- The vehicle will execute a series of maneuvers during the Calibration Verification process including driving in a straight line and slight left and right turns.
- You can press Pause and Resume (or manually turn the steering wheel) at any time during the Calibration Verification procedure if needed to ensure safe vehicle operation. However, the timer for the current step is reset each time you press the Pause button.

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1. Press the Auto Calibrate button.
2. Press the Right Arrow button.
3. Select the orientation that matches your installation, and then press the Next button.
4. Follow the on-screen prompts for OnTrac2 Tilt Zero Measurements 1 and 2.
5. Follow the on-screen prompts for the OnTrac2 Minimum Output screens.
6. Press the checkmark button to save the calibration data.
7. Drive the vehicle to a location where it can be driven in a straight line for a long distance. Set the speed of the vehicle within the speed range indicated, and then press the Resume button to begin the Calibration Verification process. Follow the on-screen prompts to complete the calibration.
8. When the Calibration Verification procedure is complete, press the checkmark button to return to the Vehicle screen.
9. After the vehicle has been calibrated and verified, you must confirm the accuracy of the lateral offset.

Adjust Lateral Offset

After the vehicle has been calibrated, perform the following procedure. This procedure will detect and eliminate skips and overlaps due to an incorrect lateral offset.

1. Set an AB line, engage AutoSteering, and AutoSteer for at least 50 yards (46 meters).
2. Stop your vehicle, place it in park, and turn off the AutoSteer system. Use a plumb bob to place a flag in the ground directly beneath the center of the draw bar.
3. Return to the vehicle, start the AutoSteer system, and engage AutoSteer for at least 50 yards (46 meters) on the same AB line.
4. Disengage AutoSteer, turn the vehicle around, and begin AutoSteering back down the same AB line in the opposite direction.

5. When the vehicle's draw bar reaches the flag, stop the vehicle, place it in park, turn off the AutoSteer system, and exit the vehicle.

6. Check to see if the center of the draw bar is over the flag.

7. If the flag is exactly beneath the center of the draw bar, no adjustment is needed.

8. If not, use a plumb bob to mark the spot directly beneath the draw bar, and then measure the distance between that spot and the flag.

9. Calculate the Offset Error by dividing the measured distance by 2. (The measurement is divided by two because taking the measurements driving in opposite directions doubles any error.)

10. Observe the offset of the error from the rear of the vehicle. Take note of whether the 2nd point is to the left or right of the original flag. If the error is to the right of the original point, the existing Antenna Lateral Offset must be adjusted to the left by the calculated Offset Error (and vice versa).

11. Go to the Edit Vehicle > Antenna Lateral Offset screen and edit the Antenna Lateral Offset value by adjusting the existing value and/or changing the offset from Left to Right.

Note: This adjustment may require you to select a different left/right offset direction.

12. Repeat the procedure to ensure that the lateral offset is now correct. If the offset is consistently within 1 to 2 inches (2 to 5 cm) it is correct.

Example:

a. The calculated Offset Error is 2 inches (5 cm) [4 inches (10 cm) / 2 = 2 inches (5cm).
b. The offset direction is to the right.
c. We need to move the point to the left and the original offset was to the right, so we subtract. [5 inches (13 cm) - 2 inches (5 cm) = 3 inches (8 cm)].
d. Enter 3 inches (8 cm) as the Antenna Lateral Offset.
e. The offset direction (Left or Right) does not need to be changed in this case.

STEERING ADJUST

Press: Vehicle button > Steering Adjust button

You can change the response of the following items by using the slider bar.

Steering Response — controls the oscillations of the vehicle when it is on the desired path.

Cross-Track Error — adjusts how aggressively the vehicle reacts to changes in cross-track error.

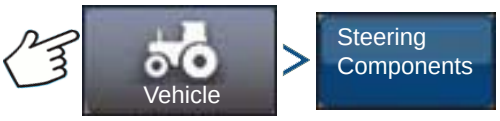
Line Acquisition — determines how aggressively the system steers onto the desired steering path. The ideal setting allows the system to take the shortest route without excessively sharp or sudden movements of the vehicle.

Minimum Motor Output — defines the minimum power needed for the MDU to turn the steering wheel.

The Steering Adjust screen enables you to improve your vehicle AutoSteering performance. You can change the response rate of the selected item with the screen slide bar:

- The turtle icon indicates slower (smooth) response.
- The rabbit icon indicates faster (aggressive) response.

STEERING COMPONENTS



Press: Vehicle button > Steering Components

This screen enables you to adjust steering components. The list of components displayed varies depending on your individual installation.

OnTrac2 ECU

The OnTrac2 ECU is the box that connects the AutoSteer controller to all AutoSteer sensors and actuators. The OnTrac2 ECU screen provides indicators showing the ECU firmware version, engaged status, MDU power status, and communication status.

Manual Steering Override

This setting determines how much force is required to disengage AutoSteering by manually turning the steering wheel. Try the factory default limit first. If the Manual Steering Override limit is set too low, the system disengages AutoSteering under normal AutoSteering conditions. If it is set too high, the wheel requires excessive force before the system disengages.

To adjust the Manual Steering Override:

1. Press the START button and attempt to turn the steering wheel left or right with the factory default Manual Steering Override value. If the default value works satisfactorily, proceed to Step 3. If you need to set a new value, proceed to Step 2.

2. If the system does not disengage, press the minus button to lower the Manual Steering Override limit. If the system disengages too easily, press the plus button to raise the Manual Steering Override limit. Turn the steering wheel left or right with the new setting until the system disengages properly.

3. Once you are satisfied with the setting, press the Save Limit button to save the Manual Steering Override limit. The successful save dialog box appears. Press the checkmark button, and then press the Back button.

Remote Engage Switch

The Remote Engage screen provides an indicator showing whether or not the Remote Engage Switch (if installed) is working properly. To test the Remote Engage Switch, press the remote engage switch once. The indicator light should turn green.

MDU

The MDU screen provides a diagnostic test to verify that your MDU (Mechanical Drive Unit) is operating correctly.

WARNING: Before performing this test, ensure people and objects are clear of the vehicle. When pressing the command buttons, the wheels move quickly from side to side. Press the STOP button to halt the wheels.

To test the MDU:

1. From the Steering Components screen, select MDU.

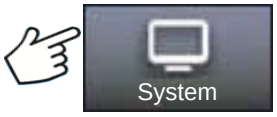
2. Read the warning carefully, and then press the Continue button.

3. Use the Steering Command buttons to send the various commands to the MDU. Observe that the steering wheel behaves according to the specified command.

Note: The command buttons control the rate at which the wheels turn left/right.

- **Hard Left button** — turns wheel left at 100%
- **Percent Left button** — turns wheels left at amount specified in slider bar
- **Zero Percent button** — stops wheels from turning
- **Percent Right button** — turns wheels right the amount specified in the slider bar
- **Hard Right button** — turns the wheel right at 100%
- **Stop button** — terminates the Steering Diagnostics procedure
- **Steering Left/Right Percentage** — changes turning speed (the higher percentage turning faster)

SYSTEM MENU



Press: System button

The system menu features the following functions:

monitor system parameters and performance

save, delete, or reset information in system database and log files

activate or deactivate optional sensors

password protected for use by qualified service technicians only.

upgrade system with the latest software available.

SYSTEM HEALTH

Press: System button > System Health button

The System Health screen provides diagnostic and status information for various aspects of steering system. The overview screen displays the status of the components. Select an item for which you want a detailed status.

MANAGE SETTINGS

Press: System button > Manage Settings button

The Manage Settings screen enables you to:

- Save or delete the current log files.
- Save the current database or import a database.
- Reset all the current settings to the default factory settings.

Log Files

The log files contain system data that can be used for diagnostic and troubleshooting purposes.

To copy log files:

1. Insert USB drive into display.
2. Press “Manage Settings” button.
3. Select Log Files.
4. Press “Copy to Display” button.

The log files are saved to the USB drive.

To delete log files:

1. Press the “Manage Settings” button.
2. Select Log Files.
3. Press “Delete” button.
4. Press checkmark button on the Delete Log Files confirmation prompt.

Log files are deleted.

Database

The database contains all the vehicle and system parameter data required for system operation. A backup of the database can be used to restore existing settings or copy them to a new system.

Note: Backup and restore of the database should not be used to copy vehicle profiles from one unit to another.

To back up database:

1. Insert USB drive into display.
2. Press “Manage Settings” button.
3. Select database.
4. Press “Backup to Display” button.

The database is saved to the USB drive.

To restore database:

Note: Restoring the database from a USB drive will overwrite the existing database in the AutoSteer system, replacing all existing information.

1. Insert a USB drive (containing the database you want to restore) into display.
2. Press “Manage Settings” button.
3. Select Database
4. Press “Restore from Display” button.
5. Select database to restore and press checkmark button.

The database is restored on the system.

Reset Factory Default

Note: If this option is selected, all settings will be reset and you will need to create, calibrate, and tune a new vehicle. Before resetting to defaults, performing a database backup is strongly recommended.

Reset Factory Default enables you to reset settings and profiles back to the default factory settings except for the Feature Codes. To reset the settings:

1. Press the “Manage Settings” button.
2. Select Reset Factory Default.
3. Press the “Reset” button.
4. Press the checkmark button.

Current settings set to the default factory settings.

ACCESSORIES

Press: System button > Accessories button

The Accessories menu is used to activate or deactivate optional sensors. Currently only the remote engaged switch is available. These options are always displayed when available. Once activated, the system is aware that the sensor is installed and functional. When options are functional diagnostic information is gathered and any malfunction of the sensor is reported through the diagnostic manager. If the sensor is removed warnings and errors are reported until the sensor is deactivated in the system.

Note: The Remote Engage Switch is an optional device that allows AutoSteer to be engaged from a device such as a foot switch or push button instead of pushing the Engage button on the display. A Remote Engage Switch must be activated in the Accessories menu.

Remote Engage Switch

Press the Enable button to activate the Remote Engage Switch. The Remote Engage Switch enabled screen appears. To disable the Remote Engage Switch at a later time, return to the screen and press the Disable button.

TECHNICIAN

Press: System button > Technician button

The Technician screen is password protected for use by qualified service technicians only.

SOFTWARE UPGRADE

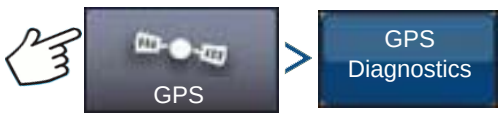
Press: System button > Software Upgrade button

The Software Upgrade screen enables you to upgrade your system with the latest application software:

1. Insert a USB drive (containing software upgrade) into Display.
2. Press Software Upgrade button.
3. Press Choose File button.
4. Select the desired software from list and press checkmark.
   The upgrade process goes through a series of steps and reboots the AutoSteer system after a successful upgrade.
5. Press checkmark button after the upgrade is complete.

The AutoSteer system is now ready for normal operation.

GPS DIAGNOSTICS

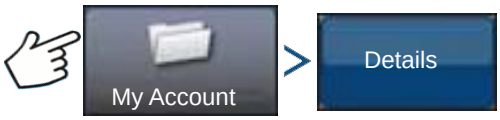


Press: GPS button > GPS Diagnostics button

The GPS Diagnostics screen displays the following operational parameters:

- **GPS Mode parameter** — current GPS mode of the receiver.
- **PDOP (Positional Dilution of Precision)** — measure of the strength of the satellite configuration. When visible GPS satellites are close together in the sky, the geometry is weak and the DOP value is high; when far apart, the geometry is strong and the DOP value is low. Thus a low DOP value represents a better GPS positional accuracy.
- **Heading** — heading of the vehicle in degrees
- **Height** — vehicle's altitude above sea level
- **# of satellites** — number of satellites being tracked by the receiver
- **Vehicle Position** — latitude and longitude of the vehicle

DETAILS



Press: My Account button > Details button

The Details button gives access to information about components installed on the system. Select the item for which you want to view details and the information about the selected item appears.

APPENDIX

SYSTEM DIAGRAMS REFERENCE

To view detailed system diagrams for various machine configurations, go to the Support tab of the Ag Leader Web site, which can be referenced via the following URL:

http://www.agleader.com/customer-support/product-manuals/

Note: *To view and/or print the System diagrams, you will need the Adobe Acrobat or Adobe Reader .pdf file format. The Adobe Reader software comes pre-installed on most personal computers. If Adobe Reader is not installed on your computer the program is available for download at no charge. A link to the Adobe download site is located at the Ag Leader Web site.*

CURRENT FILE FORMATS

.AGSETUP

Use to transfer setup information from display to display or from SMS and display

- Replaces MSF, IBY, PAT, IRX, REF
- Allows full synchronization of the following items:
- Management Data (Growers, Farms, Fields, Seasons, Operators)
- Products and Product Mixes
- Boundaries
- Guidance Patterns
- Marker Sets and Markers

Note: Do not use the IBK to “clone” a display anymore. Use AGSETUP.

.AGDATA

- Includes all the necessary data to fully archive in SMS
- Includes recorded operation data
- Equipment Used
- Products Used
- Marks Logged
- Boundaries
- Guidance Patterns
- Flexible export options
- Will be able to export by Grower

Legacy File Formats

Boundary and Guideline File Types

- **.iby**

  Boundary file format. Boundary files are created at the Boundary tab, found on the Mapping Toolbox of the Map screen; or imported to the system from the Import Files button at the External Storage Operations screen. The External Storage Operations screen can be accessed by pressing the External Storage Operations button on the Home screen.

- **.pat**

  Pattern guideline file. Pattern files are created at the Guidance tab, found on the Mapping Toolbox of the Map screen; or imported to the system from the External Storage Operations button on the Home screen. The External Storage Operations screen can be accessed by pressing the External Storage Operations button on the Home screen.

Note: Legacy boundary file (.iby) and legacy pattern file (.pat) import and export will be supported for compatibility with Insight and Edge displays

Image File Types

- **.png and .bmp**

  Supported file formats for the Display Owner Image. File size is limited to a maximum of 200 pixels wide by 100 pixels tall. Import the file from the Import Image button on the Display screen's General tab.

System File Types

- **.ibk**

  System backup file. Backup files are written to the USB drive by pressing the Create Backup button on the Display Setup screen's Advanced tab.

- **.fw2**

  Firmware upgrade file for the display and control modules. Install firmware updates from the USB drive by pressing the Upgrade Firmware button on the External Storage Operations screen. The External Storage Operations screen can be accessed by pressing the External Storage Operations button on the Home screen.

Company Warranty Statement

Ag Leader Technology will repair or replace at no charge any component of the display that fails during normal service, while being used in an approved application, within two years of the warranty start date. Warranty is not provided for damage resulting from abuse, neglect, accidents, vandalism, acts of nature, or any causes that are outside of the normal intended use of the display. Ag Leader Technology shall not be liable for indirect, incidental, or consequential damages to the dealer, end user, or third parties arising

from the sale, installation, or use of any Ag Leader Technology product.

Unauthorized Access

Certain features of the display can be locked-down by authorized personnel having password access and should be changed only by authorized personnel having password access. Unauthorized access to the locked-down features is prohibited. Attempts to access the locked-down features by unauthorized

personnel constitutes fraud. Ag Leader is not responsible for any damage or loss incurred as a result of access to the locked-down features by unauthorized personnel and you as owner of the display agree to indemnify and hold harmless Ag Leader, its, partners, subsidiaries, agents, affiliates, and/or licensor(ee)s, as applicable, for any unauthorized access to the locked-down features.

PROPRIETARY TECHNOLOGY NOTICE

Ag Leader Technology's display has patents on its design and operational features. Copying features of this system relating to measurement and calculation of grain flow and weight, organization of field and load data may result in patent infringement.

COPYRIGHT NOTICE

Ag Leader Technology has copyrighted (© 2013) the contents of this manual and the operating program for the display. No reproductions may be made without first obtaining the consent of Ag Leader Technology.

SERVICE AND SUPPORT

Your display was designed with simplicity and ease of use in mind. This manual has been provided to help familiarize yourself with the display and its basic functionality. Setup wizards are implemented where appropriate within the system to further simplify configuration and use.

If you have additional questions or feel that you may be having a problem with your system, call your local Ag Leader Technology dealer or call us directly at the phone number below. If we determine you have a hardware failure, we will ship replacement hardware immediately.

Our Technical Support Department can be reached by phone at 515-232-5363 extension #1 or through email at support@agleader.com.

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